THE *Philosophical Review*

A QUARTERLY JOURNAL

APRIL 1951

CORNELL UNIVERSITY PRESS, ITHACA, NEW YORK

$6.00 A YEAR, SINGLE COPIES $1.50

THE
Philosophical Review

EDITED BY the Faculty of the Sage School of Philosophy in Cornell University: Max Black, Stuart M. Brown, Jr., E. A. Burtt, G. Watts Cunningham (Emeritus), Willis Doney, Norman Malcolm, Arthur E. Murphy, George H. Sabine (Emeritus), Harold R. Smart, and Gregory Vlastos.

EDITORIAL BOARD

Editor: Arthur E. Murphy

Managing Editor: Stuart M. Brown, Jr.

Editorial Consultants: The Faculty of the Sage School of Philosophy together with: Henry D. Aiken, Harvard University; Virgil C. Aldrich, Kenyon College; Charles A. Baylis, University of Maryland; George Boas, Johns Hopkins University; Cornelius Krusé, Wesleyan University; and Walter T. Stace, Princeton University.

Articles intended for publication and books for review should be sent to THE PHILOSOPHICAL REVIEW, 231 Goldwin Smith Hall, Cornell University, Ithaca, New York. The articles in this REVIEW are indexed in the INTERNATIONAL INDEX TO PERIODICALS, New York, New York.

THE

Philosophical Review

VOLUME LX * NUMBER 2 * WHOLE NUMBER 354

April, 1951

EXISTENCE AND POTENTIALITY ..... GRACE DE LAGUNA 155

OUTLINE OF A DECISION PROCEDURE FOR ETHICS ... JOHN RAWLS 177

A LOGICIAN'S FAIRY TALE ..... H. L. A. HART 198

WHEWELL'S PHILOSOPHY OF SCIENTIFIC DISCOVERY. II
C. J. DUCASSE 213

DISCUSSION

Notes on Santayana's *The Last Puritan* ..... JOHN W. YOLTON 235

Professor Goudge's Queries with Respect to Materialism
ROY WOOD SELLARS 243

REVIEWS OF BOOKS 249

Thomas A. Goudge, The Thought of C. S. Peirce; by W. E. Schlaretzki—*John E. Smith*, Royce's Social Infinite; by Thomas A. Goudge—*Roy J. Deferrari* and *Sister M. Inviolata Barry* (eds.), A Lexicon of St. Thomas Aquinas; by Richard McKeon—*Paul Weiss*, Man's Freedom; by A. Campbell Garnett—*George Boas*, Wingless Pegasus; by D. W. Gotshalk—*C. E. M. Joad*, A Critique of Logical Positivism; by George Boas—*Sterling P. Lamprecht*, Nature and History; by Harold A. Larrabee—*Thomas English Hill*, Contemporary Ethical Theories, and *A. L. Hilliard*, The Forms of Value; by Stuart M. Brown, Jr.—*Paul Arthur Schilpp* (ed.), Albert Einstein: Philosopher-Scientist; by Gustav Bergmann—*Farrand Sayre*, The Greek Cynics; by Kurt von Fritz.

BOOKS RECEIVED 277

NOTES 281

American Philosophical Association. *Soviet Studies. Corpus Général des Philosophes Français.* Erratum. Southwestern Philosophical Conference. Articles in Current Philosophical Periodicals.

EDITED BY THE FACULTY OF THE SAGE SCHOOL OF PHILOSOPHY IN CORNELL UNIVERSITY. PUBLISHED BY CORNELL UNIVERSITY PRESS, ITHACA, N. Y.

Entered as second-class matter at the post office at Ithaca, New York, under the act of March 3, 1879. Additional entry at Geneva, New York.

EXISTENCE AND POTENTIALITY

THE so-called "problem of universals" rests, at least in part, on a confused identification of concepts, such as logical terms, with ontological entities. Discourse does indeed have an ineluctable reference to real being, and logical systems are in some sense applicable to *what is*. But this does not mean that there is any one-to-one correspondence between terms of discourse and existential reality, or that logical relations can be identified with ontological relations.[1]

In this article we are deliberately putting to one side the problem of the relationship of logical discourse to its object, being, fundamental as that problem is for philosophy. So far as possible our discussion will be limited to the ontological problem of the status and relationship of the characters which are universal in the sense of being common to a plurality of individual existents. We are assuming that there are individual existents; that, while each of these is unique and irreducible, it has properties common to other individuals and sustains relationships which are also universal in that they are repeatable.

Every ontological theory rests upon accepted distinctions of kinds, or modes, of being. But the real business of the ontologist is not merely the making of these distinctions and the attempt to exhibit them as ultimate and irreducible — or even as merely phenomenal. It is rather, having established his distinctions, to show how the kinds, or modes, of being are related to one another. The monist has, of course, always argued that the constraint which the pluralist is under to put his broken Humpty Dumpty together again is conclusive evidence of the fundamental oneness of whatever is. And the pluralist, on the other hand, has found the converse equally conclusive: to hold with the monist that the manifest diversity of things is merely phenomenal and not real is to admit an unaccountable distinction between the real and the phenomenal. In some sense phenomena *are,* even if only as illusions in finite minds. We may indeed classify ontological theories as monist, dualist, or pluralist, as materialist or idealist, or in other equally valid

[1] Paper read before the Fullerton Club, April, 1950.

ways; but what is important in any one of the theories so classified, its genuine philosophical significance, does not lie primarily in what the theorist explicitly defends, but in what he implicitly presumes in such defense, in what he does with the distinctions he accepts, and in the expedients he uses in meeting the difficulties which his own argument discovers.

In the history of Western thought two modes of ontological classification have been dominant. The earlier one is the Platonic dualism of ideal Forms constituting the realm of true Being, on the one hand, and, on the other, the phenomena of sense, which, as the realm of mere Becoming, are only half real. The later dualism is that of mind and matter which became dominant with the rise of modern science in the seventeenth century. These two dualisms have never been completely independent of each other; they are cross classifications of being rather than opposed conceptions of its nature. And each of them reflects epistemological attitudes and assumptions and in turn generates epistemological problems.

The Platonic dualism arose from a concern with being as the object of knowing. In mathematics Plato saw an example of true knowledge, in sharp contrast to the opinion one might hold concerning the changing world of nature. Knowledge as distinguished from opinion is, he held, certain and exact and beyond the influence of sensuous desire and passion. All knowledge must, like mathematics, rest upon definitions and must, therefore, be limited to what, as definable, is exactly what it is. It is, however, not only the subject matter of mathematics but a whole realm of the ideal and immaterial which is susceptible to exact definition and true knowledge. The ontological dualism of traditional Platonism thus rests upon the epistemological dualism of knowledge and opinion. The objects of knowledge, the definable concepts of logical thought, are identified as forms of being and their logical timelessness is identified with an ontological eternity. But if Plato and the followers of the Platonic tradition have been primarily concerned with being as the object of knowing, the status of the soul with its capacity for knowing true being and its involvement in the phenomenal realm of becoming presented a problem of almost equal importance.

In the hands of Aristotle the ontological dualism of being and becoming was reinterpreted as a duality of aspects, or factors, of substance.

It is because all finite individual substances combine matter and form that change occurs in the world of nature. Through their matter they have the potentiality for taking on form and thus undergoing change. Through their form they are *what* they are and, in so far, actual. God alone is pure form and, like a Platonic Idea, completely determinate, changeless, and eternal. As form he is thus pure actuality wholly devoid of potentiality.

With the seventeenth century and the beginnings of modern science a revolutionary change took place in philosophical thought. It was not merely that the dualism of thought and extension, of mind and matter, now took the center of the stage in place of the classic opposition of form and matter. There was a radical transformation in the conception of the existing world of nature. For what exists in the world of nature is no longer a realm of mere sense and opinion, but has itself become, as existent, the object of mathematical science. What happened was not merely the repudiation of final causes, important as this was. A more fundamental change was the repudiation of *potentiality* as ingredient in existent reality. Whatever exists in space and time, it was now assumed, is, as such, completely actual. It is not, as Plato held, a phenomenal imitation of the knowable forms, nor as Aristotle taught, a reality of which form and matter, actuality and potentiality, are irreducible ingredients. The existent world of physical things could now be conceived as the object of a new mathematical science of nature because it is wholly determinate as well as completely determined. If this transference of the actuality, which the ancients regarded as the unique prerogative of ideal form, to the existent matter of nature, made the new physical science possible, it also generated new problems for modern philosophy: mechanism and teleology, determinism and free will, interaction and parallelism, were among the issues, which, if not created by the revolution, confronted philosophy in aggravated form.

With the refocusing of ontology upon the new dualism of mind and matter, the problem of universals passed from the center to the periphery of the field of vision. Yet it persisted, even though it became less clear whether a given thinker (e.g., Spinoza) belonged in the realist or the nominalist camp. Empiricism might be generally nominalistic and rationalism realistic, yet the lines were not clear and there were exceptions. But whether as nominalists, thinkers held that only individuals are real, or, as realists, admitted the reality of species, they

were agreed that what exists is, as such, wholly actual. Even the skeptic Hume, who based his criticism of the concepts of substance and causality on the ground that the natural objects and events we experience are wholly analyzable into groups of impressions and ideas, held that these latter are each exactly what it is, completely actual. The fire *is* only the seen brightness and felt heat, and no power of charring wood and no potentiality for changing hues and varying warmth can be discovered in it. That Hume was led to restore to experience, in the guise of the association of ideas, a real potentiality that he had expelled from nature is another story. Each impression and idea is just what it is as an individual existent. It is significant, however, that the claim is often made that impressions and ideas are in fact universals, since the "same" impressions or ideas recur. Each impression is, indeed, conceived by Hume and his followers, not as a unique individual, but as a particular case of a repeatable universal.

The German idealists scarcely speak the same philosophical language as the British empiricists; yet despite their differences we find a fundamental agreement on the point we are considering. Kant's matter of sense may indeed be compared with that of Plato and Aristotle in its formlessness and indeterminate plasticity, but the world of nature as knowable is wholly actual. It is, like the natural realm of Plato, phenomenal, but just because it is phenomenal, it is, unlike Plato's, completely determined and the object of science. Whatever exists is at once phenomenally real and wholly actual. It is because Kant has so effectively barred both final causes and potentiality from the phenomenal realm that the evident purposiveness of living beings becomes so critical a problem for his later philosophy.

In modern thought the identification of what exists with what is actual has become a commonplace. The term "to exist," it might almost be said, is now used as synonymous with "to be actual," and "to be actual" has come to mean, for common sense, "to be existent." This is, however, if I am right, no mere shift in linguistic usage, but reflects a profound transformation in the conception of the ontological status of the temporally existent. This transformation in the conception of the existent, which marked the rise of early modern science, did not indeed extirpate Platonic realism as a form of ontological dualism. The epistemological problems of universals as concepts of thought (or indispensable terms of discourse) and of their application to empirical

matter of fact have continued to make ontological realism seem a natural solution. The shift in the ontological status of the existent has tended, however, to carry with it a corresponding shift in the ontological status assigned to universals. They have come to be opposed to the world of "actual" existents as a realm of ontological possibility. They *are;* that is, they have being, as "possibles of existence."

This ontological realm of possibility is conceived as a more extensive realm than that of existence, since it includes not only all that has or ever will exist, but an infinity of subsistents with no temporal status in existence. Whatever exists is held to be in some sense a selection from this infinite realm of the possible; yet the gaining of temporal status as existent leaves its status as possible of existence unaffected. The possibles are thus universals in that they may be indefinitely repeated, or exemplified, in existents, each existent representing a particular case of a universal or universals. The realm of ontological possibles is, like that of Platonic Forms, ideal, in that it is the object of thought. One may think as cogently of what is possible as of what actually exists; indeed it is only as exemplifications of the possible, as particular cases of what is universal, that the existent can become an object of science or even of common-sense thought.

If what is thus thinkable as possible is given an ontological status as an independent realm of being (e.g., as a realm of essence, or eternal objects, or even as "meanings"), its relation to the realm of existence becomes a critical problem. For there is nothing in the ideal realm of the possible to determine which of its members shall acquire existence. Existence is, as such, contingent and under no constraint from the merely possible. Nor can the fact that what exists now is the actualization of a given set of universals determine what universals shall be actualized in the future. The sequence of events in time rests upon no ground in the essences they are thought to embody, or in the universals they exemplify. For universals, as ideal objects of thought, or as terms of discourse, bear only logical relations to one another. Since the being they have is nontemporal, out of time, the coexistence or sequential order of their temporal actualization is contingent and indeterminate, wholly irrelevant to their nature as ideal.

This paradoxical conclusion cannot be avoided if one does indeed identify the existent with the actual and oppose to it a realm of the possible as merely ideal. As a matter of fact, no thinker has maintained

so complete a separation of the existent and the possible, nor can it be carried through. To conceive universals as ideal possibilities is indeed to recognize their inherent relation to what exists, for they are possibles *of existence*. And if their relations to one another as objects of thought, or as terms of discourse, are merely logical, it is only with reference to existence that those relations can be said to obtain. The principles of identity and contradiction are statements of conditionalities, not indeed of particular existents, but of *any* existent. This consideration, however, lies outside the subject with which we are here concerned.

What Whitehead has called "the fallacy of simple location" has a relevance to our argument. Descartes had held that the continued existence of the world in time was dependent on a continuing creation, or constant re-creation, of the world by God. For since what exists is wholly actual, it is completely what it is at an instant of time; it contains within itself no power to carry it into the future and no potentiality for becoming or acting. Thus, for example, it takes no time for a piece of wax to have the shape or size which characterizes it. Whatever qualities or properties it has belong to it not only irrespective of its temporal and spatial locus, but also, one might say, timelessly, since they neither endure nor become, but *are* at any instant. Nor is this way of thinking peculiar to Descartes. It is a logical consequence of the refusal to admit potentiality as a factor, or aspect, of the existent. If one recognizes a realm of timeless universals, which are at once the ideal objects of thought and possible characters of temporal existents, how is one to conceive the entrance into time of what is essentially timeless?

That whatever exists contains potentialities is a deep-seated, if inarticulate, belief of our common sense. It is not only living beings, to which we ascribe capacities for growth and internal change, but such things as stones or water, with their powers of crushing or dissolving, that are conceived as endowed with potentialities. We think in a similar way of avalanches and hurricanes, of whirlpools, or even puffs of wind. Even though these are not "things," but natural occurrences or events, they too endure and have their characteristic powers. It is indeed the potentialities of things and events that we are most interested in and that we are most concerned to discover.

If science in its revolt against an earlier metaphysics and in its attempted escape from the ambiguities of common sense has preferred

to deal only with the observable and the measurable, it has never been able to eliminate potentiality as a factor in existence. One might point to the role that the concept of mass played in classical mechanics or to the concept of energy as both kinetic and potential. Or one might cite the importance in modern physics of the concept of the electrical charge. It is true that this factor of potentiality which modern science has been forced to admit differs in important respects from that of Aristotelian philosophy. As Aristotle conceived it, potentiality was closely connected with final causality; it was an inner tendency to reach a natural end, to take on a specific form. As an egg actualizes its potentialities in becoming a chick, so a stone actualizes its potentialities in falling downward, since both are "moving" toward their natural end. Modern thought, on the contrary, conceives that it is as natural for an egg to become addled as to hatch, and as natural for a stone to be projected upward as to fall. Neither one has potentialities in the sense of having a proper nature which will be realized unless its "natural" behavior is obstructed or thwarted. Since whatever happens to eggs or stones is equally the actualization of potentialities, the ascription of potentiality might seem to lose significance. But to conclude that whatever is, or occurs, is thus merely actual would be too simple. For the characteristic likenesses and differences between things in which science, as well as common sense, is interested are found in their *ways* of behaving. Stones are like each other and different from eggs, not primarily because they look or feel different, but because they behave in characteristically different ways. The significant contrast between Aristotelian and modern thought is to be found in the modern substitution of a relativism for the Aristotelian absolutism. How things act depends on the conditions under which the action takes place. Science recognizes classes in nature, but these classes are there not *simpliciter* but relatively or with respect to some referent. It may be said that science *institutes* classes by setting up experimental conditions, yet such procedure is not merely arbitrary, nor are its results merely pragmatic. The distinctions that it institutes through experimental procedure it *discovers* to be potentialities of the existents it investigates.

The relativism which is thus fundamental to modern science was not, of course, carried through until recent times. Although the behavior of things was recognized to be dependent on conditions, the things were conceived as having intrinsic qualities, absolute and in-

variable, which belonged to them regardless of conditions. Although it is implicit in the use of experimental procedure to conceive that the conditional behavior of a thing is integral to its being what it is, yet it was long supposed that a thing had structural properties which were not only invariable, but which had only an external relation to its mode of behavior. The old puzzle of "action at a distance" and the speculative hypotheses offered to "explain" the attraction of gravitation reflect this assumption that the elementary constituents of physical objects are atoms at once unchangeable and internally indifferent to external variations in position and state of motion. Yet if recent science casts doubt on the existence of substantial entities which are independent of change, it does not follow that all reality is process or that the distinction between actuality and potentiality is no longer applicable or relevant.

Whatever exists, let us admit, is at once actual and potential. As actual it is the unrepeatable just-this-here-and-now. Actuality, as Whitehead has said, is "incurably atomic." It is a factor of the concrete existent, ineradicable but inseparable from the concrete to which it belongs. In its actuality each existent is unique. What exists is individual, and in its actuality it is just the unique individual that it is. Yet no individual is merely or wholly actual. If it were it would not be in time, for what is in time must have a temporal spread; it must both endure and change, be both present and big with a possible future. But further, although each individual is unique as actual, it is both like and unlike other individual existents in determinate respects. It has properties or characters which it shares with other existent individuals and which might also characterize past or future individuals. These characters are thus universals, although they are not to be identified with universals as terms of logical discourse. Since they may characterize an indefinite number of individuals and remain what they are in their universality, they may be considered as in some sense independent of the particular individuals they characterize at any time. Nor are they "in time" as are the individual existents they characterize, having no career and no assignable dates. Yet they are not "eternal" or "timeless" in the same sense that the truth of a statement may be said to be, since they qualify and are indeed essential to the reality of whatever has temporal existence.

It was formerly held that the universals which characterize an in-

dividual are actual, or even that the individual is itself actual in and through the characters it may be said to possess. We should urge, on the contrary, that it is through their possession of universal characters that individuals have *potentiality* as an essential constituent. Their characters, in short, are their potentialities. Let us illustrate.

Suppose we consider the weight of a given body: this shows itself, for example, by stretching the spring of a spring balance, by compressing material on which the body lies, by the resistance the body offers to being moved, by falling or floating in the earth's atmosphere, etc. The weight of the body is indeed actual in that it is constantly manifesting itself in some way, but it does not exhaust itself in any of these modes of actualization. The weight of the body is in fact just the capacity of the body to behave in such determinate ways under determinate conditions. It may be urged that the weight of a body is not an essential or even constant property; that it varies with the mass and distance of some other body, e.g., the earth, and indeed "belongs" to it only relatively to a situation. If, then, we consider mass rather than weight as a fundamental property of physical entities, it is still more clearly a potentiality which actualizes itself in a variety of ways, while still remaining a potentiality for other possible actualizations. That mass is not any more than weight an absolute and invariant property, recent science now recognizes. But if the mass of an electron varies with its velocity, its identity with itself through its variations can be conceived only in terms of its enduring potentiality for such variations.

But what, it may be asked, is to be said of the geometrical, as distinguished from the physical, properties of things? Surely such properties as shape and size are not potentialities. The roundness (spheroidicity) which characterizes two objects is actual, and the objects share it as an actuality and not as a potentiality. That there is a distinction to be drawn between the so-called geometrical and the physical properties is indeed to be admitted. A little reflection shows, however, that there is no absolute difference between the two. This is evident, first of all, from the relativity of the spatial properties; the length of an object, for example, i.e., the distance between points on its boundary, is now recognized as relative to the frame of reference. But quite aside from the claims of the theory of relativity, the shape of an object is a physical property in that it is a determinant of the object's physical behavior. A round object rolls, sharp edges cut, a

streamlined shape offers less resistance to the air, etc. Moreover, we determine what the shape or size of an object is by physical means, for all measurement involves subjecting what is to be measured to some sort of physical procedure. One need not accept the extreme conclusions of the operationalists and hold that length is to be defined in terms of the process of measurement. The shapes and sizes in some sense *are there* to be measured, but their being there is not independent of the conditional potentialities of behavior by which we test and identify them. The difference between weight and shape, for example, or between a physical and a geometrical property, is a difference in the indirectness and conditionality of its determination of behavior. "Length" or "circularity" may indeed be merely a geometrical or mathematical concept, to be defined only as a term in its relations to other terms in a mathematical system; but, as a determinable property of physical objects or paths of concrete projectiles, it exists as a potentiality, an indirect and conditional determinant of physical behavior, and as actualized in a variety of ways.

At the other extreme from the geometrical properties are the so-called secondary qualities, such as color. Since these, unlike the primary qualities, manifest themselves only in situations involving men or other animal organisms, it has been held that they are only subjective effects of physical processes and not properly ascribable to objects as their own properties. In Locke's terms, they are only "powers" of material substances. Clearly, if it is held that only what is actual is really existent, sensuous qualities such as color must be excluded from the world of physical objects and admitted only as mental existents. For even if they be recognized as powers, or potentialities, of physical things, they differ from mass, for example, in that they are not determinant of the reactions of physical things to one another. Mass may be a potentiality, but it is constantly being actualized in some one of its conditional modes; whereas color, for example, is actualized only upon occasion and intermittently and only in relation to appropriate organisms. This constitutes an undeniable difference, and it might be claimed that a real property of an existent must, like the existent itself, be continuously actual as well as potential. It is worth noting, however, that the redness which common sense ascribes to an object is not unequivocally identified with an immediate sense *quale*. For we think that it is characteristic of the red of a fabric, or of the green of the grass, to "look"

different under different conditions of illumination and background. Thus we see the grass as green, even though we may train ourselves, like the artist, to catch its "yellow" appearance. We naturally distinguish between what we may call a "real" change in the color of an object, e.g., from fading, and the "apparent" changes it undergoes with variations of illumination and contrasting background. The color we ascribe to an existent as its property is, then, like other properties in that it actualizes itself in differing ways in different situations.

The position for which we are arguing is thus in the sharpest opposition to the traditional doctrine which holds that the universals characterizing existents are themselves actualities. If universals were merely terms of discourse standing in logical relations to one another, the question of their ontological status as actual or potential could not arise. The problem of universals arises because discourse refers to an objective world, and its terms are in some sense applicable to what exists, even though each term may not denote a real entity. What we are arguing is that as characters of individuals, ingredient in what is, universals have being, not as timeless actualities incomprehensibly inserted in the flux of existence, but as conditional potentialities constitutive of whatever exists. Whatever exists is indeed actual. It is actual in its unique and irrecoverable "just thisness," which we must acknowledge, but cannot name or recognize. It is through its actuality that each individual is unique even though as an individual it has potentialities it may share with other individuals as universal characters. It is through its potentiality also that it both endures and changes.

The characters by which both common sense and science identify and class individuals are their modes of reaction under more or less determinate conditions. The properties of things are thus potentialities which are actualized in alternative ways, but always conditionally. If the conditions for a given mode of actualization are absent, the potentiality must manifest itself in some other mode — or remain latent. It is characteristic of water, for example, to freeze at 0 degrees centigrade under a given atmospheric pressure and to boil at 100 degrees under the same pressure. Whether a given body of water actually freezes or boils will depend on its environing conditions, but so long as it exists as water it retains this characteristic potentiality. The question thus arises: May not a potentiality really exist as a property of an actual existent without becoming actualized in any mode? We should

unhesitatingly say that the concrete individual which it characterizes must be actual as well as potential, and that some, at least, of its potentialities must continue to be actualized as long as the individual exists. But we also tend to think that many, if not all, individuals have potentialities which never become actualized. It is not only the flower born to blush unseen, or the honest man who says of the convicted criminal, "There but for the grace of God go I," who perish with unrealized potentialities, but an inanimate entity such as an atom or even such an individual process as a wave or a sun spot.

Science identifies and classifies chemical elements in terms of their observable reactions with one another under determinate conditions. It is characteristic of hydrogen, for instance, to combine with oxygen in certain proportions under certain conditions. There are stars, however, where hydrogen exists but no oxygen. The hydrogen in our own solar system is combustible; shall we say that the hydrogen in a stellar system devoid of oxygen is also combustible? Or, if hydrogen is the only chemical element in such a system, is it then hydrogen with all its essential and constitutive properties? Or shall we say that the introduction of other chemical elements in such a system endows hydrogen with new emergent properties? It is undoubtedly true that the properties we ascribe to things are relative to the conditions under which we know them, and it might be claimed that an adequate ontology would deny the ultimacy of individuals and analyze existence in terms of situational fields. But such an attempt would, I suspect, prove futile. We must, I think, recognize the existence of real, although perishable, individuals, which retain their identity as they pass from situation to situation and adapt themselves to changing conditions. It is true, of course, that any individual can maintain its existence only under a certain range of conditions; such conditions are thus a necessary but not sufficient determinant of individual existence. So long as an individual exists, it is both actual and potential, but how it actualizes itself depends on the particular conditions it meets. And we must also recognize that in addition to the potentialities which achieve actualization, there are others which may remain latent though no less real as constitutive of what the individual is. If we did not assume this, indeed, scientific research would be pointless.

We may think of the whole history of our solar system, for example, not only as the successive generation of new kinds of individual exist-

ents, but also as the emerging into actuality of the latent potentialities of enduring individuals. While constant and recurring actualizings are essential moments, or factors, in existing, the concrete individual has its real being largely submerged, like an iceberg, in the depths which support it. We are forced to distinguish, like the realists, in some sense between two realms: that of the flickering and transient actualities, and the wider realm of potentialities. But contrary to the realists, who conceive a realm of eternal forms, or essences, as outside and independent of the limited realm of changing existents, we may conceive of the realm of potentialities as a domain inseparable from the one real world of existence.

Let us consider again the status of hydrogen and its properties. The properties we can discover and identify are in some sense relative to the situation in which hydrogen exists. Although they truly belong to hydrogen as its properties, a statement to that effect does not adequately express their ontological status. The properties which belong to existents are conditional potentialities to be actualized only in conjunction with the actualization of reciprocal potentialities of other existents. Thus, instead of saying that hydrogen is combustible even if no oxygen exists (or that it was combustible before any other elements had yet been generated), we might say that there belonged to hydrogen as constitutive of it a general potentiality permissive of more specific determination such as combustibility. The coming into existence of oxygen at once marks the passage of a general and so indeterminate potentiality of hydrogen to one more specific and brings the potentiality a stage nearer actualization. Its combustion has now become a "real" possibility. As a potentiality of hydrogen it has passed from an outer zone of latency to an inner zone of "real possibility." Every existent, we repeat, is both actual and potential. Back of, or below, the specific potentialities which achieve actualization there extends an indefinite series of others, of varying degrees of determination and at varying distances from actuality.

Individuals are generated and persist as they become, and all that exists is in constant process. All change, whether the coming into existence of new individuals, or the processes in which any existent participates, is not only a change in actuality, or the emergence into actuality of what was potentiality, but every change is also a change in the domain of the potential. We shall return later to a further consideration of this.

In maintaining the ontological reality of a realm of Forms, or Essences, independent, in its timeless being, of the realm of temporal existents, the philosophy of realism has faced well-known difficulties. While most of the controversy, especially in modern times, has turned on epistemological and logical issues, there are problems equally fundamental that are primarily ontological. It is these alone with which we are here concerned.

There are, first, the problems of the relationship of the realm of Forms to that of existence; and, second, those concerning the number and organization of the Forms, the internal structure of the ideal realm. We have already mentioned the difficulty of conceiving how a timeless essence can be inserted in the temporal flux. Closely related to this is the problem of temporal order and of causal relationship between events, especially critical in modern times with the exclusion of final causality. For even though the timeless or logical order of Forms might be reflected, or exemplified, in the structure of the existent world at a temporal cross section, it could be reflected in the temporal course of nature only in an assumed everlasting repetitiveness of cycles of temporal events. Temporal change must be conceived as wholly contingent, or merely phenomenal.

Aside from the difficulty of understanding how the ideal and timeless Forms could find a footing in the existential flux, there is also the problem as to why some and not others actually acquire such status. It is, of course, evident that there is an existential incompatibility between logically contrary essences, since logical relationships themselves refer to possible existence. But in addition to this, it would seem that the characters exemplified in the existent world exhibit some sort of selection from the multiplicity of Forms. Although it has sometimes been held (cf. both Spinoza and Leibniz) that every essence has a tendency, more or less impelling, toward existence, it has more generally been held, from Plato to Whitehead, that the existent world is due in some sense to the creative choice of a divine being. Controversy has raged over the issues raised in this resort to God. If God's choice has involved a valuation of essences as possibles-of-existence, has it been determined by his goodness (e.g., as in Leibniz), or, as Plato held, is the Good itself a supreme Form, and does the realm of Forms itself supply an ideal pattern and exemplar for the created world? Is, indeed, any other world than this possible, or is this not only the best,

but the one and only world, including within itself all possibilities, as Spinoza held? Bound up with such questions is the problem of the relation of God's Will to his Intellect, of Good to Evil, and of man's own cosmic status and his own freedom.

More fundamental still for the realist is the problem of God's relationship to the realm of essence. For God is invoked not merely to bridge the gap between essence and existence — as the being whose essence includes existence — but as necessary to the ordering of the realm of essence itself. If Plato conceived the Forms to constitute a hierarchy of being culminating in the one supreme Form of the Good, he was acutely aware of and ceaselessly concerned with the difficulties of such a conception. Among Aristotle's criticisms of Platonism is that of "the third man"; if, in order to account for the fact of two or more individuals having a common character, it is necessary to assume the independent being of this character, then it is equally necessary to assume a third entity to account for the common characters shared by individual Forms. Or, more generally, as Aristotle says: "It is as if a man who wanted to count things thought he would not be able to do it while they were few, but tried to count them when he had added to their number. For the Forms are practically equal to — or not fewer than — the things, in trying to explain which these thinkers proceeded from them to the Forms."[2] The difficulty is not merely the multiplicity of entities to which the procedure leads, but its futility. For recourse to the realm of Forms is had not merely to account for the fact that existent individuals fall into classes, but to account for whatever *order* obtains in the realm of existence. But if the fact of order in the world of existent entities can only be explained by invoking the aid of another world of individual entities, must not the order of the second realm equally demand an external source?

Despite the great differences between ancient and modern thought, the same difficulties are faced by recent thinkers. Santayana, for example, boldly conceives his realm of essence as "an infinite field for selection," which, however, "cannot select or emphasize any part of itself." "The multitude of essences is absolutely infinite." "The realm of essence is the home of eternal and irreducible plurality,"[3] In it "no

[2] Metaphysics, I, ch. ix.
[3] *Realm of Essence* (New York), pp. 15, 21, 27.

one can be prior to any other in their own sphere."[4] In itself the realm of essence furnishes no ideal or pattern for the order which is to be found in nature. Which of the infinite array of essences are embodied in physical substances or become intuited by spirits is wholly contingent. The whole realm of essence is indeed, Santayana holds, itself an essence, which is absolutely infinite in complexity, and "thus doubtless many others are infinitely complex in particular respects or categories."[5] Yet even the one infinitely complex essence is only one among the multiplicity of self-contained essences; it is not itself the realm as a unified whole.

Santayana is very instructive since he emphasizes and carries through more unequivocally than other thinkers the independence and self-sufficient detachment of essence from existence. It is for this very reason that he exhibits the dialectic involved in realism: the more completely the realm of Forms, or essences, is detached from the existence of individuals, the more it disintegrates into a sheer chaos of discrete entities.

Although it is with hesitation that I venture on a critical discussion of Whitehead's profound philosophy, it is impossible to avoid the consideration of his treatment of the problem. One of the most significant points of contrast between his philosophy and that of Santayana is his acceptance of God as a metaphysical necessity. God has a twofold role in the philosophy of organism: first, as an indispensable link between the timeless realm of eternal objects[6] and the existential realm of actual occasions (both in his primordial and in his consequent nature), and, second, as the agency by which the eternal objects acquire their "primordial valuation" and a "real togetherness."

> This final entity [God] is the divine element in the world, by which the barren inefficient disjunction of abstract potentialities obtains primordially the efficient conjunction of ideal realization.... Apart from such orderings, there would be a complete disjunction of eternal objects unrealized in the temporal world.[7]

The eternal objects in themselves, it thus seems evident, like the essences of Santayana, constitute a multiplicity of discrete individuals.

[4] *Scepticism and Animal Faith* (New York), p. 132.
[5] *Realm of Essence*, p. 71.
[6] Whitehead defines an eternal object as follows: "Any entity whose conceptual recognition does not involve a necessary reference to any definite actual entities of the temporal world is called 'an eternal object' " (*Process and Reality* [New York], p. 70).
[7] *Ibid.*, p. 64.

"Each eternal object is an individual which, in its own peculiar fashion, is what it is. This particular individuality is the individual essence of the object, and cannot be described otherwise than as being itself."[8] While it "transcends" its attachment to (ingression into) any particular actual occasion, it has no such ontological independence as is enjoyed by Santayana's essences. "The metaphysical status of an eternal object," Whitehead writes,[9] "is that of a possibility for an actuality." This essential relationship of the realm of timeless potentialities to the temporal realm of actualities is expressed in the fundamental notion of what is called "the ontological principle." This is stated in various ways. "Apart from things that are actual, there is nothing — nothing either in fact or in efficacy."[10] Again: "The ontological principle can be summarized as: no actual entity, then no reason."[11] It is thus because eternal objects are transcendent in that they may and do escape realization in the temporal world of actual occasions, and yet can have no complete independence of what is actual, that God becomes a metaphysical necessity for Whitehead.

One of the most difficult and (to me at least) obscure parts of Whitehead's philosophy is the elaborate distinction drawn between the "relational" and the "individual" essence of an eternal object. Each eternal object, although in itself a unique individual, is also, by virtue of its relational essence, not only a possible ingredient in actual occasions, but internally related to all other eternal objects.

> Since the relationships of A [any eternal object] to other eternal objects stand determinately in the essence of A, it follows that they are internal relations. I mean by this that these relationships are constitutive of A; for an entity which stands in internal relations has no being as an entity not in these relations.[12]

From this it would seem to follow that the realm of eternal objects is itself a unitary system of interconnected entities, which are what they are through membership in it. But if this is the case, God's function would seem to be limited to providing the connection of the eternal objects to the temporal world, or in so ordering the selection of those which are ingredient in actual occasions that they constitute a graded hierarchy of relevance to each occasion. It is perhaps significant that

[8] *Science and the Modern World* (New York), p. 229.
[9] *Ibid.*, p. 229.
[10] *Process and Reality*, p. 64.
[11] *Ibid.*, p. 28.
[12] *Science and the Modern World*, p. 230.

in the later work, *Process and Reality,* no mention is made of the "relational essences" of the eternal objects, and that the role of God in his primordial nature is emphasized, if not actually extended. One more passage from the later work may be cited in this connection.

> The notion of "subsistence" is merely the notion of how eternal objects can be components of the primordial nature of God. . . . But eternal objects, as God's primordial nature, constitute the Platonic world of ideas.
>
> There is not, however, one entity which is merely the *class* of all eternal objects. For if we conceive any class of eternal objects, there are additional eternal objects which presuppose that class but do not belong to it. For this reason, at the beginning of this section, the phrase "the multiplicity of Platonic forms" was used, instead of the more natural phrase "the class of Platonic forms." A multiplicity is a type of complex thing which has the unity derivative from some qualification which participates in each of its components severally; but a multiplicity has no unity derivative *merely* from its several components.[13]

There are two fundamental points in which the position set forth in these pages is in accord with Whitehead. There is, first, the ontological principle, according to which there can be no complete separation, no ontological dualism, between universals and temporal existents. Second, there is the acceptance of potentiality as integral to concrete reality and its identification with the formal and universal factor in the real. Eternal objects are "pure potentials" and they "can be described only in terms of [their] potentiality for 'ingression' into the becoming of actual entities."[14] There is further the critical — and questionable — point of the relation of what is general and so potential to continuity. "Continuity," he writes, "concerns what is potential; whereas actuality is incurably atomic."[15] It is true that the continuity he is here concerned with is that of "the extensive continuum of space-time," which forms the matrix for the connectedness of the actual occasions in their becoming. The extensive continuum is "the fundamental aspect of the limitation laid upon abstract potentiality by the actual world."[16] "It is not a fact prior to the world; it is the first determination of order — that is, of real potentiality — arising out of the general character of the world."[17] The "real potentiality" mentioned here is distinguished, as relative, from "general potentiality" which is absolute, and as such is "the bundle of possibilities, mutually consistent or alternative, provided by the multiplicity of eternal objects."[18]

[13] *Process and Reality,* p. 73.
[14] *Ibid.,* p. 34.
[15] *Ibid.,* p. 95.
[16] *Ibid.,* p. 123.
[17] *Ibid.,* p. 103.
[18] *Ibid.,* pp. 101–102.

It seems clear that, despite the connection of potentiality with continuity, the eternal objects themselves do not constitute a continuum. Although each eternal object is related to every other, this relation is itself an eternal object with its own individual essence. The realm of eternal objects, if I understand the position taken by Whitehead, remains a multiplicity of individual entities and as such discontinuous. It is only as comprehended in the primordial nature of God that their sheer multiplicity is mediated.

To the realistic conception of a realm of essences as a multiplicity of discrete individuals, there is, I would suggest, a possible theoretical alternative. It is the conception of an *ideal continuum.* A notion similar to that here intended is Peirce's conception of a "potential aggregate" which he presents in his treatment of the Logic of Continuity.[19] A potential aggregate, he states, "does not contain any individuals at all. It only contains general conditions which *permit* the determination of individuals."[20] Similarly the ideal continuum here proposed is not, as a continuum, constituted by an infinite multiplicity of essences, even though the relations of essences to one another are themselves essences. It is rather a potential aggregate of essences, as particular potentialities or individual universals. It at once permits the determination of the particular potentialities which characterize the concrete existents of the temporal world and provides the general conditions for their relatedness to one another. It is a continuum in the sense of being what Peirce defines a continuum to be, "relational generality." He writes: "Now continuity is shown by the logic of relations to be nothing but a higher type of that which we know as generality. It is relational generality."[21]

The ideal continuum is thus very different from the infinitely complex essence assumed by Santayana, which includes all the infinity of individual essences as constituent members. As the conditionality of essences, the ideal continuum is not itself an essence, although one may say of it metaphorically that it is the matrix of essences as potentialities of the existent. It is, on the other hand, analogous to the primordial nature of God, in so far as it provides for the "togetherness" of essences; yet it differs radically from this Whiteheadean conception in that it is not, like God, an actual individual.

[19] *Collected work* (Cambridge, Massachusetts, 1935), VI, ch. vii.
[20] *Ibid.*, 185.
[21] *Ibid.*, 190.

We have already argued that whatever exists includes, as essential to its existence, potentiality. The existent as such, we may say, "participates" in an ideal realm of potentiality. We would now state, conversely, that the realm of essences, as specific potentialities, has being only through its correlative ingredience in a world of existents. *Apart from the existence of concrete individuals there are no essences.* The ideal continuum as the potential, and not the actual, aggregate of essences, has, on the other hand, an independence of the world of existents which the realm of essences has not. If we suppose, as indeed we must, that the existent world is contingent in its actuality, then it would follow that the realm of essences, as the specific potentialities correlative to this actual world, is also contingent. For the ideal continuum, as a potential aggregate, is not exhausted in the determination of any infinite aggregate, or set, of such specific potentialities as characterize this existent world. As it might be possible that another world than this should exist, so it might be possible that other potentialities should be elicited from the inexhaustible matrix of the continuum. Such unelicited and unrealized potentialities are not, then, already eternally *there,* even in Whitehead's phrase as a "barren inefficient disjunction of abstract possibilities." If one can speak of a primordial coming into being of the existent world as that which might not have occurred, one can equally speak of the essences correlative to the world as also coming into existence. I would thus paraphrase the ontological principle as "No existent, no essence."

At this point, however, we face a further problem. For if, as we suggest, the being of particular potentialities is determined along with what exists as temporally actual, how can potentialities at the same time, have that universality which belongs to them as essences? Although they are characters of the particular individuals that exist at a given time, they are also possible characters of other individuals which may never actually exist. It is for this reason, at least in part, that they have been held to be "eternal," and that Whitehead calls them "transcendent" and invokes the actual entity, God, at once eternal and temporal, through whom they have "subsistence." If we do not assume God to account at once for their transcendence of the particular existents at any time and for their dependence on what does exist, how is this problem to be solved?

If the potentialities which constitute the characters were attributes

of existents simply belonging to them as individual substances and adequately expressible in terms of the subject-predicate relationship, the problem would indeed be, so far as I can see, insoluble. But while the characters of individuals are potentialities which truly belong to them, they involve the relationship of the individual to other existents. As an individual cannot exist in a void, so the characters it has involve its relationship to other individuals and implicate their reciprocal and correlative characters. Each individual is unique, but it could not exist in isolation from an environing world. Nor could it be *what* it is, or have any determinate character at all, in independence of *what* other individuals are.

The coming into existence of any individual thus carries with it the coming into existence of a world. But the existence of a world involves a primordial structuring of the ideal continuum, a determining of the general conditions, not merely of any world, but of such a world as this. Such structuring is not, however, complete. It is rather the determination of such general potentialities as set the pattern of this world. Whatever comes into existence and whatever changes occur are such as conform to this general pattern and are compossible with what already exists. But neither the particular individuals, nor even the specific kinds which arise in the actual course of nature, are determined by this primordial pattern of the world.

If the world in existing were completely actual and completely determined, one might say that, paradoxically, there would be a correspondingly complete determination of a realm of eternal essences. But the world is not only a world which in existing constantly *becomes,* but one which is only partially determinate and incompletely determined. The becoming of the world, the course of nature, is not to be conceived as a progressive selection of potentialities, each an individual essence, timeless and unchangeable. With the becoming of the world there is a shift in the status of the potentialities of the world, in which some are brought nearer to actualization and some moved farther away. There is also, as we argued earlier, the taking on of further determination by the relatively indeterminate potentialities in nature. There is, so to speak, a passage from an outer zone of latency to an inner zone of "real potentiality." What was once impossible of actualization in the world becomes "really possible," if not actual, and what was possible in the past becomes, in a significant sense, really impossible in the

future. The course of nature is evolutionary in the sense that what exists at one time makes possible, although it does not completely determine, the generation not only of new individuals, but of new kinds of individuals having different potentialities from those of previous individuals. But because the world in its existence has determined conditions for the real compossibility of individuals and their potentialities, the determination of specific potentialities and their approach toward actualization eliminates the determination of others, removing them, as it were, from the inner zone of imminent actualization to an outer zone of mere latency and indeterminacy. Each change in existence opens up fresh possibilities for becoming and shuts the door on what once was not excluded. The course of nature, which is the becoming of the world, is both cumulative and eliminative.

GRACE A. DE LAGUNA

Bryn Mawr College

OUTLINE OF A DECISION PROCEDURE FOR ETHICS

1.1 The question with which we shall be concerned can be stated as follows: Does there exist a reasonable decision procedure which is sufficiently strong, at least in some cases, to determine the manner in which competing interests should be adjudicated, and, in instances of conflict, one interest given preference over another; and, further, can the existence of this procedure, as well as its reasonableness, be established by rational methods of inquiry? In order to answer both parts of this question in the affirmative, it is necessary to describe a reasonable procedure and then to evidence that it satisfies certain criteria. This I attempt to do beginning at 2.1 below.

1.2 It should be noted that we are concerned here only with the existence of a reasonable method, and not with the problem of how to make it psychologically effective in the settling of disputes. How much allegiance the method is able to gain is irrelevant for our present purposes.

1.3 The original question has been framed the way it is because the objectivity or the subjectivity of moral knowledge turns, not on the question whether ideal value entities exist or whether moral judgments are caused by emotions or whether there is a variety of moral codes the world over, but simply on the question: does there exist a reasonable method for validating and invalidating given or proposed moral rules and those decisions made on the basis of them? For to say of scientific knowledge that it is objective is to say that the propositions expressed therein may be evidenced to be true by a reasonable and reliable method, that is, by the rules and procedures of what we may call "inductive logic"; and, similarly, to establish the objectivity of moral rules, and the decisions based upon them, we must exhibit the decision procedure, which can be shown to be both reasonable and reliable, at least in some cases, for deciding between moral rules and lines of conduct consequent to them.

2.1 For the present, we may think of ethics as being more analogous to the study of inductive logic than to any other established inquiry. Just as in inductive logic we are concerned with discovering reasonable criteria which, when we are given a proposition, or theory, together with the empirical evidence for it, will enable us to decide the extent to which we ought to consider it to be true so in ethics we are attempting to find reasonable principles which, when we are given a proposed line of conduct and the situation in which it is to be carried out and the relevant interests which it effects, will enable us to determine whether or not we ought to carry it out and hold it to be just and right.

2.2 There is no way of knowing ahead of time how to find and formulate these reasonable principles. Indeed, we cannot even be certain that they exist, and it is well known that there are no mechanical methods of discovery. In what follows, however, a method will be described, and it remains for the reader to judge for himself to what extent it is, or can be, successful.

2.3 First it is necessary to define a class of competent moral judges as follows: All those persons having to a certain requisite degree each of the following characteristics, which can, if desired, be made more determinate:

(i) A competent moral judge is expected to have a certain requisite degree of intelligence, which may be thought of as that ability which intelligence tests are designed to measure. The degree of this ability required should not be set too high, on the assumption that what we call "moral insight" is the possession of the normally intelligent man as well as of the more brilliant. Therefore I am inclined to say that a competent moral judge need not be more than normally intelligent.

(ii) A competent judge is required to know those things concerning the world about him and those consequences of frequently performed actions, which it is reasonable to expect the average intelligent man to know. Further, a competent judge is expected to know, in all cases whereupon he is called to express his opinion, the peculiar facts of those cases. It should be noted that the kind of knowledge here referred to is to be distinguished from sympathetic knowledge discussed below.

(iii) A competent judge is required to be a reasonable man as this characteristic is evidenced by his satisfying the following tests: First,

a reasonable man shows a willingness, if not a desire, to use the criteria of inductive logic in order to determine what is proper for him to believe. Second, a reasonable man, whenever he is confronted with a moral question, shows a disposition to find reasons for and against the possible lines of conduct which are open to him. Third, a reasonable man exhibits a desire to consider questions with an open mind, and consequently, while he may already have an opinion on some issue, he is always willing to reconsider it in the light of further evidence and reasons which may be presented to him in discussion. Fourth, a reasonable man knows, or tries to know, his own emotional, intellectual, and moral predilections and makes a conscientious effort to take them into account in weighing the merits of any question. He is not unaware of the influences of prejudice and bias even in his most sincere efforts to annul them; nor is he fatalistic about their effect so that he succumbs to them as being those factors which he thinks must sooner or later determine his decision.

(iv) Finally, a competent judge is required to have a sympathetic knowledge of those human interests which, by conflicting in particular cases, give rise to the need to make a moral decision. The presence of this characteristic is evidenced by the following: First, by the person's direct knowledge of those interests gained by experiencing, in his own life, the goods they represent. The more interests which a person can appreciate in terms of his own direct experience, the greater the extent to which he satisfies this first test. Yet it is obvious that no man can know all interests directly, and therefore the second test is that, should a person not be directly acquainted with an interest, his competency as a judge is seen, in part, by his capacity to give that interest an appraisal by means of an imaginative experience of it. This test also requires of a competent judge that he must not consider his own *de facto* preferences as the necessarily valid measure of the actual worth of those interests which come before him, but that he be both able and anxious to determine, by imaginative appreciation, what those interests mean to persons who share them, and to consider them accordingly. Third, a competent judge is required to have the capacity and the desire to lay before himself in imagination all the interests in conflict, together with the relevant facts of the case, and to bestow upon the appraisal of each the same care which he would give to it if that interest were his own. He is required to determine what he would think to be

just and unjust if each of the interests were as thoroughly his own as they are in fact those of other persons, and to render his judgment on the case as he feels his sense of justice requires after he has carefully framed in his mind the issues which are to be decided.

2.4 Before considering the next step in the development of the method here adopted, it is necessary to make some comments on the previous remarks. First, the tests for defining and determining the class of competent moral judges are vague; that is, given a group of persons, there would be, in all probability, instances in which we could not decide whether a person is a competent moral judge or not. Yet we do recognize in everyday life the pattern of characteristics discussed above; we do think that certain individuals exhibit them to a comparatively pre-eminent degree, and these individuals we call "reasonable" or "impartial"; it is men of their character whom we want to decide any case in which our interests are at stake. Thus, while the foregoing tests are admittedly not precise, they do describe and select a recognized type of person; and those persons who do satisfy them beyond any reasonable doubt, will be called "competent moral judges."

Second, it is important to note that a competent judge has not been defined by what he says in particular cases, nor by what principles he expresses or adopts. Competence is determined solely by the possession of certain characteristics, some of which may be said to be capacities and achievements (intelligence and knowledge), while others may be said to be virtues (thus, the intellectual virtues of reasonableness). It will become clear in later sections why we cannot define a competent judge, at least at the beginning of our inquiry, as one who accepts certain principles. The reason is that we wish to say of some principles for adjudicating interests that one ground for accepting them as reasonable principles is that competent judges seem to apply them intuitively to decide moral issues. Obviously if a competent judge were defined as one who applies those principles, this reasoning would be circular. Thus a competent judge must not be defined in terms of what he says or by what principles he uses.

Third, one should note the kind of characteristics which have been used to define a competent moral judge: namely, those characteristics which, in the light of experience, show themselves as necessary conditions for the reasonable expectation that a given person may come to know something. Thus, we think of intelligence as being such a con-

dition in all types of inquiry; and similarly with knowledge, since the more a man knows, the greater the likelihood of his success in further inquiry. Again, not only is it necessary to have certain abilities and achievements but, to be a good investigator, a person must develop those habits of mind and thought which we may call "intellectual virtues" (cf. 2.3 [iii]) Finally, there are those habits and capacities of thought and imagination which were described in connection with sympathetic knowledge of human interests. Just as intellectual capacities and virtues are found to foster the conditions necessary for successful inquiry of whatever type, so these habits and capacities are believed to be necessary for making fair decisions on moral issues. We may call them the "virtues of moral insight" with the understanding that they do not define either the content or the nature of moral insight, but, assuming it exists, simply represent those habits and capacities which secure the conditions under which we believe it most likely to assert itself effectively. Thus the defining characteristics of a competent judge have not been selected arbitrarily, but in each case there is a reason for choosing them which accords with the purpose of coming to know.

Finally, we can make these remarks clearer if we consider other methods of choosing the class of competent judges. It is one of the marks of an ideology that it violates the above criteria. Ideologies, of whatever type, claim a monopoly of the knowledge of truth and justice for some particular race, or social class, or institutional group, and competence is defined in terms of racial and/or sociological characteristics which have no known connection with coming to know. In the present method care has been exercised to select the class of competent moral judges according to those characteristics which are associated with coming to know something, and not by means of characteristics which are the privileged possession of any race, class, or group, but which can and often do belong, at least to certain degree, to men everywhere.

2.5 The next step in the development of our procedure is to define the class of considered moral judgments, the determining characteristics of which are as follows:

(i) It is required first that the judgment on a case be given under such conditions that the judge is immune from all of the reasonably foreseeable consequences of the judgment. For example, he will not be punished for deciding the case one way rather than another.

(ii) It is required that the conditions be such that the integrity of the judge can be maintained. So far as possible, the judge must not stand to gain in any immediate and personal way by his decision. These two tests are designed to exclude judgments wherein a person must weigh the merit of one of his own interests. The imposition of these conditions is justified on the grounds that fear and partiality are recognized obstructions in the determination of justice.

(iii) It is required that the case, on which the judgment is given, be one in which there is an actual conflict of interests. Thus, all judgments on hypothetical cases are excluded. In addition, it is preferable that the case be not especially difficult and be one that is likely to arise in ordinary life. These restrictions are desirable in order that the judgments in question be made in the effort to settle problems with which men are familiar and whereupon they have had an opportunity to reflect.

(iv) It is required that the judgment be one which has been preceded by a careful inquiry into the facts of the question at issue, and by a fair opportunity for all concerned to state their side of the case. This requirement is justified on the ground that it is only by chance that a just decision can be made without a knowledge of the relevant facts.

(v) It is required that the judgment be felt to be certain by the person making it. This characteristic may be called "certitude" and it is to be sharply distinguished from certainty, which is a logical relation between a proposition, or theory, and its evidence. This test is justified on the ground that it seems more profitable to study those judgments which are felt to be correct than those which seem to be wrong or confused even to those who make them.

(vi) It is required that the judgment be stable, that is, that there be evidence that at other times and at other places competent judges have rendered the same judgment on similar cases, understanding similar cases to be those in which the relevant facts and the competing interests are similar. The stability must hold, by and large, over the class of competent judges and over their judgments at different times. Thus, if on similar cases of a certain type, competent judges decided one way one day, and another the next, or if a third of them decided one way, a third the opposite way, while the remaining third said they did not know how to decide the cases, then none of these judg-

ments would be stable judgments, and therefore none would be considered judgments. These restrictions are justified on the grounds that it seems unreasonable to have any confidence that a judgment is correct if competent persons disagree about it.

(vii) Finally, it is required that the judgment be intuitive with respect to ethical principles, that is, that it should not be determined by a conscious application of principles so far as this may be evidenced by introspection. By the term "intuitive" I do not mean the same as that expressed by the terms "impulsive" and "instinctive." An intuitive judgment may be consequent to a thorough inquiry into the facts of the case, and it may follow a series of reflections on the possible effects of different decisions, and even the application of a common sense rule, e.g., promises ought to be kept. What is required is that the judgment not be determined by a systematic and conscious use of ethical principles. The reason for this restriction will be evident if one keeps in mind the aim of the present inquiry, namely, to describe a decision procedure whereby principles, by means of which we may justify specific moral decisions, may themselves be shown to be justifiable. Now part of this procedure will consist in showing that these principles are implicit in the considered judgments of competent judges. It is clear that if we allowed these judgments to be determined by a conscious and systematic application of these principles, then the method is threatened with circularity. We cannot test a principle honestly by means of judgments wherein it has been consciously and systematically used to determine the decision.

2.6 Up to this point I have defined, first, a class of competent judges and, second, a class of considered judgments. If competent judges are those persons most likely to make correct decisions, then we should take care to abstract those judgments of theirs which, from the conditions and circumstances under which they are made, are most likely to be correct. With the exception of certain requirements, which are needed to prevent circularity, the defining characteristics of considered judgments are such that they select those judgments most likely to be decided by the habits of thought and imagination deemed essential for a competent judge. One can say, then, that those judgments which are relevant for our present purposes are the considered judgments of competent judges as these are made from day to day on the moral issues which continually arise. No other judgments, for reasons previously stated, are of any concern.

3.1 The next step in the present method is as follows: once the class of considered judgments of competent judges has been selected, there remains to discover and formulate a satisfactory explication of the total range of these judgments. This process is understood as being a heuristic device which is likely to yield reasonable and justifiable principles.

3.2 The term "explication" is given meaning somewhat graphically as follows: Consider a group of competent judges making considered judgments in review of a set of cases which would be likely to arise in ordinary life. Then an explication of these judgments is defined to be a set of principles, such that, if any competent man were to apply them intelligently and consistently to the same cases under review, his judgments, made systematically nonintuitive by the explicit and conscious use of the principles, would be, nevertheless, identical, case by case, with the considered judgments of the group of competent judges. The range of an explication is specified by stating precisely those judgments which it is designed to explicate, and any given explication which successfully explicates its specified range is satisfactory.

3.3 The next objective, then, in the development of the present method is to discover and formulate an explication which is satisfactory, by and large, over the total range of the considered judgments of competent moral judges as they are made from day to day in ordinary life, and as they are found embodied in the many dictates of commonsense morality, in various aspects of legal procedure, and so on. If reasonable principles exist for deciding moral questions, there is a presumption that the principles of a satisfactory explication of the total range of the considered judgments of competent judges will at least approximate them. On the basis of this presumption the explication of these judgments is designed to be a heuristic device for discovering reasonable principles. Therefore, while explication is an empirical inquiry, it is felt that it is likely to be a way of finding reasonable and justifiable principles in view of the nature of the class of judgments which make up its range.

3.4 Since the concept of an explication may not be clear, I shall try to clarify it by stating some of the things that an explication is not. First, an explication is not an analysis of the meaning of the ethical terms used in the judgments constituting its range. An explication

attempts to do nothing more than that explicitly stated above, and in no way concerns itself with the sense of ethical expressions or with their linguistic meaning.

Second, an explication is not concerned with what people intend to assert when they use ethical expressions or make moral judgments in particular cases.

Third, an explication is not a theory about the actual causes of the considered judgments of competent judges, and this fact, in addition to the restriction to a specified class of judgments, sharply distinguishes it from a psychological or a sociological study of moral judgments. The only sense in which explication, as here defined, is concerned with causes is that a satisfactory explication can be a cause, or could be a cause, of the judgments in its range, i.e., the explicit and conscious adoption of the principles of the explication would yield the same judgments. Since explication is not concerned with the actual causes of judgments, it is immaterial whether the judgments in its range are caused by the intuition of nonnatural ethical characteristics, or by the response of intentional feelings to directly experienced value qualities, or by emotional attitudes which may in turn have been caused by certain specifiable psychological and sociological determinants. Questions about the actual causes, while interesting, are irrelevant from the standpoint of the present method. That such questions are irrelevant is also clear from the fact, previously stated, that the objectivity or subjectivity of moral judgments depends not on their causes, in any of the senses just listed, but solely on whether a reasonable decision procedure exists which is sufficiently strong to decide, at least in some cases, whether a given decision, and the conduct consequent thereto, is reasonable.

Finally, there is only one way of showing an explication to be unsatisfactory, and that is to show that there exist considered judgments of competent judges on specifiable cases for which it either fails to yield any judgments at all or leads one to make judgments inconsistent with them. Conversely, the only way to show that an explication is satisfactory is to evidence that its explicit and conscious application can be, or could be, a cause of the judgments in its range.

3.5 Having noted some of the things that an explication is not, I consider some positive features thereof. First, an explication must be such that it can be applied intelligently by a competent judge; and since a competent judge is not required to have a special training in logic

and mathematics, an explication either must be formulated or formulatable in ordinary language and its principles must be capable of an interpretation which the average competent man can grasp.

Second, an explication must be stated in the form of principles, the reason for this demand lying in the use of explication as a heuristic device. The typical form of a considered judgment is as follows: since $A, B, C, \ldots$, and $M, N, O, \ldots$, are the facts of the case and the interests in conflict, M is to be given preference over $N, O, \ldots$ A considered judgment does not provide any reasons for the decision. It simply states the felt preference in view of the facts of the case and the interests competing therein. The principles of an explication must be general directives, expressible in ordinary language, such that, when applied to specific cases, they yield the preferences expressed in considered judgments.

Finally, an explication, to be completely successful, must be comprehensive; that is, it must explicate, in view of the explication itself (for this proviso, see below, 4.3), all considered judgments; and it is expected to do this with the greatest possible simplicity and elegance. The requirement of simplicity means that, other things being equal, an explication is more or less satisfactory according to the number of principles which it uses; and although this demand is difficult to state precisely, it is clear that nothing is gained if we require a separate principle for each case or for each class of cases.

3.6 The attempt to discover a comprehensive explication may be thought of as the attempt to express the invariant in the considered judgments of competent judges in the sense that, given the wide variety of cases on which considered judgments are made at different times and places, the principles of the explication are such that the conscious and systematic application of them could have been a common factor in the determination of the multiplicity of considered judgments as made on the wide variety of cases. Whether such an explication exists or not, one cannot know at present, and opinions vary; but the belief that such an explication does exist is perhaps a prerequisite for the finding of it, should it exist, for the reason that one who does not so believe is not likely to exert the great effort which is surely required to find it.

4.1 Perhaps the principal aim of ethics is the formulation of justifiable principles which may be used in cases wherein there are conflicting

interests to determine which one of them should be given preference. Therefore it remains to consider what is meant by the terms "justifiable principle" and a "rational judgment" in a particular case.

4.2 Consider the simpler question first, namely, what is the test of whether a judgment in a particular case is rational? The answer is that a judgment in a particular case is evidenced to be rational by showing that, given the facts and the conflicting interests of the case, the judgment is capable of being explicated by a justifiable principle (or set of principles). Thus if the explicit and conscious adoption of a justifiable principle (or set of principles) can be, or could have been, the ground of the judgment, or if the judgment expresses that preference which justifiable principles would yield if applied to the case, then the judgment is rational. Clearly the justification of particular judgments, if the above is correct, depends upon the use of justifiable principles. But how do we know whether a principle is justifiable? Four criteria for answering this question are considered below.

4.3 In what follows we shall assume that a satisfactory and comprehensive explication of the considered judgments of competent judges is already known (note proviso under fourth test below). Now consider the question as to what reasons we can have for accepting these principles as justifiable.

The first reason for accepting them has already been touched upon: namely, since the principles explicate the considered judgments of competent judges, and since these judgments are more likely than any other judgments to represent the mature convictions of competent men as they have been worked out under the most favorable existing conditions, the invariant in what we call "moral insight," if it exists, is more likely to be approximated by the principles of a successful explication than by principles which a man might fashion out of his own head. Individual predilections will tend to be canceled out once the explication has included judgments of many persons made on a wide variety of cases. Thus the fact that the principles constitute a comprehensive explication of the considered judgments of competent judges is a reason for accepting them. That this should be so is understandable if we reflect, to take the contrary case, how little confidence we would have in principles which should happen to explicate the judgments of men under strong emotional or physical duress, or of those mentally

ill. Hence the type of judgments which make up the range of the explication is the first ground for accepting the principles thereof.

Secondly, the reasonableness of a principle is tested by seeing whether it shows a capacity to become accepted by competent moral judges after they have freely weighed its merits by criticism and open discussion, and after each has thought it over and compared it with his own considered judgments. It is hoped that some principles will exhibit a capacity to win free and willing allegiance and be able to implement a gradual covergence of uncoerced opinion.

Thirdly, the reasonableness of a principle is tested by seeing whether it can function in existing instances of conflicting opinion, and in new cases causing difficulty, to yield a result which, after criticism and discussion, seems to be acceptable to all, or nearly all, competent judges, and to conform to their intuitive notion of a reasonable decision. For example, the problem of punishment has been a troublesome moral issue for some time, and if a principle or set of principles should be formulated which evidenced a capacity to settle this problem to the satisfaction of all, or nearly all, competent judges, then this principles, or set of principles, would meet this test in one possible instance of its application. In general, a principle evidences its reasonableness by being able to resolve moral perplexities which existed at the time of its formulation and which will exist in the future. This test is somewhat analogous to a test which we impose upon an empirical theory: namely, its ability to foresee laws and facts hitherto unknown, and to explain facts and laws hitherto unexplainable.

Finally, the reasonableness of a principle is tested by seeing whether it shows a capacity to hold its own (that is, to continue to be felt reasonable), against a subclass of the considered judgments of competent judges, as this fact may be evidenced by our intuitive conviction that the considered judgments are incorrect rather than the principle, when we confront them with the principle. A principle satisfies this test when a subclass of considered judgments, rather than the principle, is felt to be mistaken when the principle fails to explicate it. For example, it often happens that competent persons, in judging the moral worth of character, blame others in conflict with the rule that a man shall not be morally condemned for the possession of characteristics which would not have been otherwise even if he had so chosen. Frequently, however, when we point out that their judgments conflict

with this rule, these persons, upon reflection, will decide that their judgments are incorrect, and acknowledge the principle. To the extent that principles exhibit this capacity to alter what we think to be our considered judgments in cases of conflict, they satisfy the fourth test. It is, of course, desirable, although not essential, that whenever a principle does successfully militate against what is taken to be a considered judgment, some convincing reason can be found to account for the anomaly. We should like to find that the once accepted intuitive conviction is actually caused by a mistaken belief as to a matter of fact of which we were unaware or fostered by what is admittedly a narrow bias of some kind. The rationale behind this fourth test is that while the considered judgments of competent judges are the most likely repository of the working out of men's sense of right and wrong, a more likely one, for example, than that of any particular individual's judgments alone, they may, nevertheless, contain certain deviations, or confusions, which are best discovered by comparing the considered judgments with principles which pass the first three tests and seeing which of the two tends to be felt incorrect in the light of reflection. The previous proviso (3.5) is to be understood in connection with the above discussion of the fourth test.

4.4 A principle is evidenced to be reasonable to the extent that it satisfies jointly all of the foregoing tests. In practice, however, we are wise if we expect less than this. We are not likely to find easily a comprehensive explication which convinces all competent judges, which resolves all existing difficulties, and which, should there be anomalies in the considered judgments themselves, always tends to overcome them. We should expect satisfactory explications of but delimited areas of the considered judgments. Ethics must, like any other discipline, work its way piece by piece.

4.5 It is worthwhile to note that the present method of evidencing the reasonableness of ethical principles is analogous to the method used to establish the reasonableness of the criteria of inductive logic. In the latter study what we attempt to do is to explicate the full variety of our intuitive judgments of credibility which we make in daily life and in science in connection with a proposition, or theory, given the evidence for it. In this way we hope to discover the principles of weighing evidence which are actually used and which seem to be capable of winning the assent of competent investigators. The principles so gained

can be tested by seeing how well they can resolve our perplexity about how we ought to evaluate evidence in particular cases, and by how well they can stand up against what appear to be anomalous, but nevertheless settled, ways of appraising evidence, provided these anomalies exist. Thus each test above (4.3) has its parallel, or analogy, in the tests which are applied to inductive criteria. If we make the assumption that men have a capacity for knowing right and wrong, as they have for knowing what is true and false, then the present method is a likely way of developing a procedure for determining when we posses that knowledge; and we should be able to evidence the reasonableness of ethical principles in the same manner that we evidence the reasonableness of inductive criteria. On the other hand, just as the development of science and the method of science evidences the capacity to know what is true and false, so the actual formulation of ethical principles and the method whereby they can be tested, as this formulation is shown in the existence of satisfactory and reasonable explications, will evidence the capacity to know what is right and wrong as well as the validity of the objective distinction between the two. In the next sections I shall state what is designed to be such an explication.

5.1 In daily life we make moral judgments about at least three types of things: the moral worth of persons, the justice of actions, and the value of certain objects and activities. The explication below is designed to explicate our judgments on actions only. It will be necessary to make some preliminary definitions about goods and interests which will not be further discussed.

5.2 The class of things which are termed "goods" is held to fall into three subclasses: (i) good things, which are defined as being any physical objects which have a discernible capacity to satisfy, under specifiable conditions, one or more determinable needs, wants, or likings, e.g., food, clothes, houses. (ii) Good activities, which are defined as any activity which has a discernible capacity to satisfy, under specifiable conditions, one or more determinable needs, wants, or likings, e.g., the pursuit of knowledge, the creating and the contemplating of works of art, social fellowship. (iii) Enabling goods, which are defined as any object, or class of objects, or any activity or set of activities, whose use or exercise under specifiable circumstances tends to foster conditions under which goods of types (i) and (ii) may be produced, appropriated, or exercised.

The term "interest" is understood as follows: an interest is thought to be any need, want, or liking for some good, of any type; and in what follows, we are to think of this need, want, or liking as having been made articulate by means of an express claim before a body of competent judges (not of a legal, but of an ethical, court), and the claim is conceived of as asking for the possession of a good (if a thing), or as seeking the permission to exercise it (if an activity). Thus we may think of a claim as articulating an interest before a forum wherein its merits are to be weighed.

5.3 Next it is necessary to specify the kind of situation in which the problem of the justice of a decision and the action consequent thereto arises. This is done as follows: the problem of justice arises whenever it is the reasonably foreseeable consequence of the satisfaction of two or more claims of two or more persons that those claims, if given title, will interfere and conflict with one another. Hence the problem of the justice of actions, as a theoretical question, is essentially the problem of formulating reasonable principles for determining to which interests of a set of competing interests of two or more persons it is right to give preference.

5.4 It is required, further, to define a just state of affairs as follows: assuming that the principles just mentioned exist, then a state of affairs is just, if and only if, given the relevant interests in conflict prior to its establishment, those interests which are secured and satisfied within it are those which would be secured and satisfied within it if all those agents, who were instrumental in bringing it about, had intelligently applied those principles in order to determine their decisions and conduct. Otherwise a state of affairs is unjust. It can be seen from this definition that we cannot determine the justness of a situation by examining it at a single moment. We must know what interests were in existence prior to its establishment and in what manner its present characteristics have been determined by human action.

5.5 I shall now give a statement of what are hoped to be satisfactory principles of justice. The reasonableness of these principles is to be tested by the criteria discussed in 4.3. It should be said that the statement below is not intended to be more than provisionary. Little attention has been given to independence, simplicity, or elegance. These are luxuries which can only be had after a fruitful statement of the necessary principles has already been given.

(i) Each claim in a set of conflicting claims shall be evaluated by the same principles. Comment: This principle expresses one aspect of what is customarily meant in the parallel case at law wherein it is said that all men shall be equal before the law. It asserts nothing about the content of the principles, but only that, whatever the principles employed may be, the same ones shall be used for all the interests in conflict, and not one set for one interest, another set for another interest.

(ii) (a) Every claim shall be considered, on first sight, as meriting satisfaction. (b) No claim shall be denied possible satisfaction without a reason. (c) The only acceptable reason for denying a possible satisfaction to a claim, or for modifying it, shall be that its satisfaction has reasonably foreseeable consequences which interfere with the satisfaction of another claim, and the formulation of this rejection or modification is reasonable provided that it can be explicated by this, together with other, principles. Comment: This principle declares that the presumption is always in favor of a claim, and it specifies what kind of reasons are required to rebut this presumption.

(iii) (a) One claim shall not be denied, or modified, for the sake of another unless there is a reasonable expectation that the satisfaction of the one will directly and substantially interfere with the satisfaction of the other. (b) The phrase "reasonable expectation" shall be construed as referring to an expectation based upon beliefs which can be validated by evidence in view of the canons of inductive procedure. (c) The more worthy the claim the greater the tolerance which shall be allowed to its interference, or presumption of interference, with other interests, and vice versa. Comment: This principle may be thought of as a generalization of the so-called "clear and present danger" rule formulated to cover decisions regarding freedom of speech, etc.

(iv) (a) Given a group of competing claims, as many as possible shall be satisfied, so far as the satisfaction of them is consistent with other principles. (b) Before modifying one interest or sacrificing one interest to another, an attempt shall be made to find a way of securing the benefits of both, which, if successful, shall be followed.

(v) (a) If means of any kind are used for the purpose of securing an interest, it shall be reasonably demonstrable that they are designed to secure it. (b) If nonneutral means, that is, means whose employment effect some other interest or interests, are used for the purpose of

securing an interest, then the appropriateness of using those means shall be determined by weighing the merits of all the interests effected in accordance with other principles. Comment: The phrase "reasonably demonstrable" is to be construed like the phrase "reasonable expectation" in (iii) (b).

(vi) (a) Claims shall be ordered according to their strength. (b) The strength of a claim depends directly and proportionately on the presence in the bearer of the claim of that characteristic which is relevant for the distribution, or the exercise, of the good. (c) Relevant characteristics are those specifiable needs, wants, and likings which the good thing or activity has a discernible capacity to satisfy under ascertainable conditions. Comment: This principle is designed to order a set of claims for a share in a particular good; and it asserts that relevant characteristics are those needs, wants, or likings whose satisfaction is ordinarily understood to be the purpose of appropriating or exercising a good. Thus, if the competing claims are for a share in a certain amount of food, then the relevant characteristic is the need for food. A test thereof should be devised, and the claims ordered accordingly. A nonrelevant characteristic for claims of this type would be the number of letters in the bearer's last name.

(vii) (a) Given a set of equal claims, as determined by their strength, all shall be satisfied equally, if that is possible. (b) Given a set of equal claims, if it is not possible to satisfy all of them, at least to some extent, then an impartially arbitrary method of choosing those to be satisfied shall be adopted. (c) Given a set of unequal claims, with subsets of equal claims which have been ordered according to (vi), then the claims shall be satisfied in that order; and, within subsets, (vii) (a) shall apply, if that is possible, otherwise (vii) (b). Comment: The term "impartially arbitrary" may be clarified as follows: Imagine a good of such a nature that it is impractical or impossible to divide it, and yet each of a number of persons has an equally strong claim on its possession or exercise. In such a case we would be directed to select one claim as meriting satisfaction by an impartially arbitrary method, e.g., by seeing who draws the highest card. This method is arbitrary because the characteristic of having drawn the highest card is not a relevant characteristic by (vi) (c). Yet the method is impartial because prior to the drawing of the cards each person has an equal chance to acquire in his person the characteristic arbitrarily taken to be relevant.

6.1 The above principles are offered as an explication of the considered judgments of competent judges made in situations involving the problem of the justice of actions. In addition, it is hoped that they will satisfy the tests of reasonableness stated in 4.3. Now it is obviously desirable to give an illustration of at least some of these principles, although space forbids any detailed discussion. The question is, how shall we illustrate them? Shall we use an imaginary example? The following considerations answers this question: just as epistemology is best studied by considering specific instances of intuitively acceptable knowledge, ethics is most profitably pursued by examining carefully instances of what seem to be intuitively acceptable and reasonable moral decisions; and just as the instances suitable for epistemology may often be found in the theories of the well-developed sciences, so instances suitable for ethics can be found in those decisions which seem to represent a well-established result of discussion on the part of moralists, jurists, and other persons who have given thought to the question at issue. Following this suggestion, I shall illustrate several principles by attempting to show that they yield an established result regarding freedom of speech and thought.

6.2 Consider the Inquisition, and recall that this institution justified its activity on the grounds that the teaching of heretics had the consequence of increasing the number of the damned and therefore of substantially interfering with the pre-eminent interests of other men in salvation. The difficulty is that there is no evidence, acceptable to the canons of inductive procedure, to support this belief, and therefore, by (iii), the proceedings of the Inquisition were unjust.

On the other hand, consider a person, or institution, adopting the rule that no one shall believe a proposition unless evidence, acceptable by the canons of inductive procedure, is known to exist as a ground for believing it, and suppose this person, or institution, takes repressive action accordingly. What are we to say of actions consequent to the adoption of this principle? We must hold that they are unjust on the grounds that (ii) is violated, since it is clear that believing propositions for which no evidence yet exists does not necessarily affect the interests of other persons. Consider the following two kinds of cases: First, it is generally recognized that hypotheses, presumed by the investigator to be true, but not known by evidence to be true, play an important part in scientific inquiry, yet no one believes that a scientist who believes

such a hypothesis, and who labors to evidence it, is, at the early stage of inquiry, acting unjustly. Second, it is generally recognized that the articles of religious faiths are not usually establishable by evidence acceptable to inductive criteria. Believers themselves are often anxious to grant this point frequently on the grounds that otherwise faith would not be faith. Yet no one, believer or unbeliever, is prepared to maintain that having religious beliefs is unjust, although some may think it mistaken. The having of such beliefs is an interest we respect, and a person is required to evidence his belief only when he proposes to take action on the basis of it which substantially interferes with the interests of other persons.

Thus, applied to the question of freedom of speech, thought, etc., principles (ii) and (iii) seem to yield what is an acceptable, and accepted, rule of justice: namely, each man may believe what he sees fit to believe, but not at the peril of another; and in an action wherein the interests of others are effected, a necessary condition for its being just is that the beliefs on which it is based are evidenced beyond any reasonable doubt.

It should be noted, in the light of this example, that we may think of rules, as opposed to principles, as maxims expressing the results of applying the principles of justice to recognized and frequently occurring types of cases. The justification for following a rule, or appealing to it in ordinary life, consists in showing that it is such a maxim. For brevity, however, we have omitted this intermediate step in discussing justification.

6.3 It is worthwhile to note how a decision with respect to a given set of conflicting interests, under given conditions, can be shown to be unjust. This is done by showing that the decision is not that decision which a competent and intelligent man would make if he used the stated principles of justice to determine his decision on the case, assuming here, for the sake of exposition, that these principles satisfy the tests in 4.3. To show that a given decision conflicts with what a principle would dictate is to give a reason for thinking it is unjust. To show this principle by principle and point by point, is to accumulate reasons against the decision and the conduct consequent thereto, so that, during the course of discussion, a decisive case may be made against it. The procedure is somewhat analogous to evidencing a

proposition or theory in the real sciences, except that in moral discussions we try to validate or invalidate decisions and the action consequent thereto, given the circumstances and the interests in conflict (not acts of believing given a proposition or theory and its evidence), and the criteria we use are the principles of justice (and not the rules of inductive logic).

6.4 The manner of describing the decision procedure here advocated may have led the reader to believe that it claims to be a way of discovering justifiable ethical principles. There are, however, no precisely describable methods of discovery, and certainly the finding of a successful explication satisfying the tests of 4.3 will require at least some ingenuity. Therefore it is best to view the exposition as a description of the procedure of justification stated in reverse. Thus if a man were asked to justify his decision on a case, he should proceed as follows: first, he should show that, given the circumstances and the interests in conflict, his decision is capable of being explicated by the principles of justice. Second, he should evidence that these principles satisfy the tests in 4.3. If asked to proceed further, he should remark on the nature of considered judgments and competent judges and urge that one could hardly be expected to prefer judgments made under emotional duress, or in ignorance of the facts by unintelligent or mentally sick persons, and so on. Finally, he should stress that such considerations arise, if the demands for justification are pushed far enough, in validating inductive criteria as well as in justifying ethical principles. Provided an explication exists satisfying the tests in 4.3, moral actions can be justified in a manner analogous to the way in which decisions to believe a proposition, or theory, are justified.

6.5 Two possible objections remain to be considered. First, it may be said that, even if the foregoing decision procedure could be carried out in a particular case, the decision in question still would not be justified. To this I should say that we ought to inquire whether the person making the objection is not expecting too much. Perhaps he expects a justification procedure to show him how the decision is deducible from a synthetic a priori proposition. The answer to a person with such hopes is that they are logically impossible to satisfy and that all we should expect is that moral decisions and ethical principles are capable of the same sort of justification as decisions to believe and inductive criteria. Secondly, it may be said that a set of principles

satisfying the tests of 4.3 does not exist. To this I should say that while it is obvious that moral codes and customs have varied in time, and change from place to place, yet when we think of a successful explication as representing the invariant in the considered judgments of competent judges, then the variation of codes and customs is not decisive against the existence of such an explication. Such a question cannot be decided by analysis or by talking about possibilities, but only by exhibiting explications which are capable of satisfying the tests which are properly applied to them. At some future time I hope to be able to offer something more constructive in this direction than the brief remarks in 5.5 and 6.2.

JOHN RAWLS

Princeton University

A LOGICIAN'S FAIRY TALE

I

"ONCE upon a time...." How shall we characterize the use of language which this familiar formula introduces? When fairy tales were told to us as children we understood them perfectly, and as adults we still understand them though perhaps less well, but the modern logician, in spite of the arsenal of weapons at his disposal, involves himself in paradox and absurdity in trying to *say* what it is that the storyteller does with words. What accounts for his failure is, I think, just the supply of modern weapons, because they tempt the logician who wields them into the incautious assumption that the methods of logical analysis, the principles of logical classification, and the symbolic notation which have been so fruitful and so clarifying in the treatment of mathematical or other systems of necessary truth can safely be used, merely *mutatis mutandis,* in the elucidation of the non-necessary propositions of ordinary discourse. And since in modern[1] manuals of logic this assumption determines the whole presentation of the subject, it is worth examining a single case where, as it seems to me, it calamitously breaks down, especially as a moral may be drawn for other cases where also the obviously valuable apparatus of modern logic seems not to clarify but to distort.

II

I shall take as my example of the modern treatment of this topic the discussion by Ambrose and Lazerowitz[2] in their *Fundamentals of Symbolic Logic* (pp. 178–190) of general propositions and the four Aristotelian forms A, E, I, and O. This discussion reaches the now orthodox conclusion that the classical interpretation of statements of the form "All S is P," "No S is P," "Some S is P," and "Some S is not P" as shown in the Square of Opposition traditionally used for the ex-

[1] I owe the substance of this criticism of modern logical doctrine to Mr. P. F. Strawson. See his article, "On Referring," *Mind* (July, 1950), esp. pp. 343–344.

[2] Hereafter referred to as "the authors."

hibition of the logical relations between these forms was both mistaken and inconsistent; and the counterrecommendation (also now orthodox) is made that while the I and O forms are affirmative existential sentences [$(\exists x).fx \cdot gx$ and $(\exists x).fx \cdot \sim gx$], which entail that there exist members of the class designated by their subject terms, the A and E forms should be interpreted as negative existential sentences so as to leave open, as I and O do not, the possibility that there are no members of the subject class. Thus, for the modern logician, $\sim(\exists x).fx \cdot \sim gx$ (called "the minimum interpretation") is the sole assertive force of A and correspondingly $\sim(\exists x).fx \cdot gx$ of E; whereas on the classical interpretation the A and E forms have "existential import" and according to the authors their force on that interpretation is respectively $\sim(\exists x).fx \cdot \sim gx : (\exists x).fx$ and $\sim(\exists x).fx \cdot gx : (\exists x).fx$ (called "the existential interpretation"). Of course the authors recognize that in ordinary English usage expressions of the form "All S is P" would be understood existentially, i.e., "so as to imply that there are S's" and to allow this they treat such ordinary English expressions as in fact elliptic and as asserting not merely a statement of the A form but also the further existential statement $(\exists x).fx$; and they recommend that what is thus "implicit" in ordinary discourse be made explicit in an accurate logical analysis by transcribing such ordinary but elliptic English expressions by the conjunctive form $\sim(\exists x).fx \cdot \sim gx : (\exists x).fx$.

On this familiar basis three criticisms of the classical analysis are made:

First, there is no single interpretation of the A and E forms for which all the relations depicted in the classical Square of Opposition hold. For according to the modern doctrine A *can* only be construed either (1) as $\sim(\exists x).fx \cdot \sim gx$ (the minimum interpretation) or (2) as $\sim(\exists x).fx \cdot \sim gx : (\exists x).fx$ (the existential interpretation). If the minimum interpretation is chosen all the relations represented by the sides of the Square fail leaving only the relationship of contradiction between A and O, E and I represented by the diagonals; whereas if the existential interpretation is chosen the relation of contradiction represented by the diagonals fails, for on this interpretation A and O, and E and I are contraries since both of each pair would be false if $\sim(\exists x).fx$ is true, and the relation of subcontrariety between I and O also fails.

Secondly, since according to the classical view "All S is P" is interpreted existentially, which for the authors' view means as *"saying"*[3] $\sim (\exists x).fx \cdot \sim gx:(\exists x).fx$, it is impossible on this interpretation to express an important class of general proposition of which the authors cite "No uranium deposits in Ohio are easy to mine" and "All Greek gods have human frailities" and others as examples. For according to the authors "all these statements are held to be true," yet they would not be true if they were interpreted as asserting that there were uranium deposits in Ohio or Greek gods as, in the authors' view, the classical analysis would interpret them. So if we adopt the classical interpretation, this important class of general proposition would have to be treated as exceptions to it; whereas, if we adopt the minimum interpretation recommended, these propositions can be represented by it, and the existentially understood propositions of ordinary discourse represented by the conjuncton of the minimum interpretation together with the further form $(\exists x).fx$.

Thirdly, the classical interpretation leads to the supreme absurdity that the existence of at least one thing of every kind whatever could be logically demonstrated. For, given any set of four propositions of the A, E, I, and O forms such as the following (cited by the authors)

> All ogres are wicked,
> No ogres are wicked,
> Some ogres are wicked,
> Some ogres are not wicked,

it will follow on the classical interpretation that ogres exist and "not only ogres but something of every mentionable kind would have to exist by logical necessity" (p. 187). And the authors remark that "theologians and metaphysicians" anxious to construct a proof of the existence of God oddly failed to see that the Square of Opposition "which all or nearly all of them accepted" (p. 187) provided them with all that they needed for the proof of the existence of an Absolutely Perfect Being.

The novelty in this presentation of the indictment is the use by the authors of a fairy-tale generalization to render glaring the absurdity of the Aristotelian interpretation and to bring out the clarificatory power of the modern analysis. Perhaps also novel is the curious mixture of appeals to modern English usage ("there is a further justification of

[3] My italics.

the modern analysis in the fact that the classical interpretation results in upsetting the relations holding in English usage between A and O, E and I" [p. 185]) with the acceptance of a consequence of the modern analysis described as "at first sight paradoxical" (p. 190), namely, that A and E are not contraries but can be true together as in the authors' fairy-tale example "All leprechauns are bearded" and "No leprechauns are bearded," which are to be "counted" true given the circumstance that there are no leprechauns. But novel or not, the account which results from the analysis advocated by the authors of the general propositions of a fairy tale, whose subject is an ogre, a leprechaun, or any other creature of fancy, is a curious one; indeed it is hardly less curious than the old pre-Russellian notion that, since the propositions of fiction have a meaning, there must be a subsistent but nonexistent "universe of discourse" which these propositions if true describe and if false misdescribe. For according to the authors' analysis, all such universal propositions of a fairy tale ("All ogres are wicked," "No ogres are wicked") are true though "vacuously" true, and all the particular propositions ("Some ogres are wicked," "Some ogres are not wicked") are false. This is, indeed, "at first sight paradoxical" and the air of paradox is not dissipated by a second glance. Surely to make believe that there are ogres, to speak as *if* there were ogres, and to say of them that they are all wicked is not really the same as to assert the "vacuous" truth that nothing is an ogre and not wicked. For the truth accorded in this analysis to "All ogres are wicked," though called vacuous, is not truth in some harmless special sense ("true in fiction"), meaning no more than that the proposition forms part of the story or myth, in which sense "No ogres are wicked" would be false; but both these fairy-tale generalizations are true in the same factual sense that "There are no ogres" is true and for the same reason, namely, they accurately describe the world. Perhaps rather than this, most people would prefer to swallow what in the view of these authors is the consequence of the classical existential interpretation, that all the general propositions of a fairy-tale describing its fictitious beings, universal and particular alike, are false. But if fiction and vacuous truth seem different things, so do fiction and falsity. Can we resist the identification of fiction with either?

III

That we can and indeed should resist, is apparent from an examination of the argument used to convict Aristotle of having provided in the Square of Opposition a proof "of the existence of at least one thing of every kind whatsoever." This argument involves two steps, each of which rests I think on a misunderstanding of important features of empirical discourse and is as follows:

(I) "Given any set of four propositions answering to the forms, A, E, I, O, it is plain that at least one of them must be true" (p. 186) and "the underlying assumption is such that one of the two particulars I and O must be true" (page 187).

(II) "Both I and O (where the A, E, I. O, propositions are taken to be 'All ogres are wicked,' etc.) imply that there are ogres" (p. 187).

From which the authors draw their conclusion:

(III) "Hence given that one of the four propositions about ogres must be true and that everyone of them implies that there must be ogres then there are no conceivable circumstances under which, 'There are ogres' will be false. This is to say that 'There are ogres' is *necessarily* true..." (p. 187).

Of these statements (I) surely is profoundly misleading, and there seems no reason to believe that any of the "theologians or metaphysicians" who accepted the traditional Square of Opposition were committed to it. For the Square is simply concerned to exhibit the logical interrelation of these four forms of statement, i.e., to show how the truth value of statements of one form is determined by the truth value of the others, and what its sides and diagonals represent are statements of entailment or statements of logical necessity or impossibility. Thus the line for superimplication drawn between A and I represents " 'A' entails 'I' " or " ' A ⊃ I' is logically necessary" and the line for subcontrariety between I and O represents "–'I' entails 'O' " and " '–O' entails 'I' " or " '–I.–O' is logically impossible" or, as the authors themselves so clearly put it, " 'I v O' is a disjunction which holds necessarily." But it is quite clear that the only information which such statements of entailment or logical necessity or impossibility can yield as to the truth or falsity of values of any one of the A,E,I,O forms must be hypothetical: they tell us only *if* O is false then I must be true, *if* A is true then I must be true, etc. Of course we might say, e.g., of

the contradictory forms A and O, E and I, "One of them must be true," but this would be a loose idiom for "If either is true then the other must be false, and if either is false the other must be true." Accordingly instead of (I) the authors are entitled only to assert:

(IA) "Given any set of propositions of the forms A, E, I, O, it is plain that *if* one or more are false one of them at least must be true" and "the underlying assumption is such that *if* one of two particulars I and O is false the other must be true."

Now if this simple and vital correction of (I) to (IA) is made then the authors' conclusion (III) does not follow and Aristotle is not guilty of having provided a proof of the "existence of not only ogres but something of every mentionable kind" and the "theologians and metaphysicians" are not guilty of having neglected this proof.

But of course the correction may be challenged on the ground that in order to sustain the authors' indictment of Aristotle we merely have to add to (I) and (II) the principle "every meaningful proposition is either true or false" and that this has not been stated only because it is too obvious to be stated even in an elementary book on logic. But here I think lies a serious misunderstanding of the nature of common discourse, for in the sense required for the authors' argument this principle is not only not obvious but false. Of course we could concede that if an empirical descriptive sentence has meaning it must be possible (however vaguely or imperfectly) to describe circumstances in which if the sentence were used the statement thereby made would be true and not also false, and other circumstances in which it would be false and not also true. And no doubt "Some ogres are wicked" has a meaning for us just because we could specify such circumstances, but this does not in the least mean that on *every occasion* (including the course of a fairy tale) when the sentences "All ogres are wicked," "Some ogres are wicked," are used a statement is made which must be graded as either true or false. And yet it is this that the authors must maintain if their indictment of Aristotle is to succeed; for, only if it is the case that on *every occasion* of the meaningful use of a sentence of the A, E, I, O form the statement thereby made must be true or false, does it follow from the description given by the Square of the logical relations between these forms that one of them must be true; only if this is the case, has Aristotle proved into existence "not only ogres but something of every mentionable kind."

In making this criticism I am not contending for a third truth value, a "multi-valued" logic, or the introduction of any sophisticated formal principle. I am on the contrary defending a feature of ordinary speech against a formal logician's prejudice which has blinded authors as accurate as these to the difference between (I) and (IA), or at least has made them disregard it. The prejudice is that all descriptive sentences share at least this characteristic, that whenever they are meaningfully uttered this results in a statement which must be either true or false (*factually* true or false, not "true or false in fiction") and must apply to something, though not necessarily the entities designated by their grammatical subjects, for those may not exist. No doubt this close identification of the notion of meaning with the notion of being true or false is a fundamental principle of the "extensional" logic which has resulted from the transfer to empirical discourse of principles appropriate enough in the logical analysis of mathematics, but it leads here to the obliteration of a vital feature in the use (and in some contexts the abuse) we make of words. To make serious factually true or false statements is no doubt the most important use of intelligible descriptive sentences, but it is not the only use. For we can and do often say when a sentence has been used in our presence that the question of its truth or falsity does not arise *on this occasion* though of course we can understand it and consequently may recognize its logical relation to other propositions. One such situation is the occasion when fairy tales are told to us: ogres, we know, do not exist, but the storyteller is for our entertainment making the peculiar use of words which we can call speaking *as if* they do, and saying things which, if ogres existed, could be true or false, but since they do not exist are neither. The context of this occasion, verbal, factual (no ogres), and histrionic, make it clear that it would be absurd to press seriously the question: "Is it true (not just part of the story) that all ogres are wicked?" Indeed so far is it from being the case that every statement we understand must be either true or false that if we did press this question seriously that would be a sign that we had not understood the speaker's use of the sentence. An important variant of this type of situation when "true" or "false" is out of place has been recognized by lawyers as well as logicians in the Fallacy of Many Questions. If Smith has no wife we refuse to say that "Smith has left off beating his wife" is true or false. Of course the sentence has a meaning which we understand: we could

describe the circumstances in which it would be true or false and we could say what it entails or what is entailed by it. All that is "wrong" where the Fallacy of Many Questions is committed is that on the particular occasion of its usage we cannot characterize it as true or false because this is possible only when the prior questions "Has he a wife and has he beaten her?" have been settled affirmatively. If the speaker presses for an answer to the question: "Is it true or is it false?" we say "It does not arise; you must be under the mistaken impression that Smith has a wife." Nothing but the logician's prejudice that on every occasion of use a meaningful sentence must be true or false debars us from making this natural comment: only this prejudice forces us to "translate" the sentence into an existential statement in order to have the dubious satisfaction of calling it false. And the same prejudice forces us to "translate" All ogres are wicked" into a negative existential statement, $\sim (\exists x).\, f x \cdot \sim g x$, in order to have the still more dubious satisfaction of calling it (vacuously) true. To steer clear of these paradoxes, it is necessary to keep sharply separate the question which concerns the meaning or meaningful character of a sentence, namely, in what circumstances would it be true or false, from the question whether on any particular occasion of use the statement made is true or false or, as in the case of fiction, cannot be seriously characterized as either.

IV

The foregoing is enough to clear Aristotle of the authors' third charge. But it is important to see that the first charge of the inconsistency of the Square is for similar reasons also ill-founded, not because it matters much that Aristotle was not guilty but because the charge rests on a misunderstanding of the precise character of the "existential import" of the A, E, I, O forms which we need to understand if we are to characterize adequately their use in fiction.

Consider the authors' statement:

(II) "Both I and O imply that there are ogres."

Here "imply" has, as the authors make clear, the sense of "entail." But is (II) true? Of course the modern transcription of I and O as $(\exists x).\, f x \cdot g x$ and $(\exists x).\, f x \cdot \sim g x$ *assumes* that it is true, and consistently with this the authors (P. 178), in advocating this transcription, write "Some cab drivers are well-read *says*[4] that some in-

[4] My italics.

dividuals are both cab drivers and well-read" and add the remark that "Some cab drivers are well-read" would be made false if no individual were either a cab driver or well-read. But unless the propriety of the modern transcription of the I and O forms is already assumed there seems no reason for saying that the statement is false if made under these circumstances. For again the proper comment in these circumstances is that the statement is not to be characterized as either true or false, just as "Smith has left off beating his wife" is neither true or false if Smith has no wife or has never beaten her. And so in fairy tales. Of course the story-teller who says "Some ogres are wicked" speaks on this occasion *as if* there were ogres; perhaps he pretends to believe that there are ogres or might even believe that in fact there are. But whichever (if any) of these is the correct description of the use made on this occasion of the sentence "Some ogres are wicked," the fact that there are no ogres does not render what he says false; and, if this is so, "Some ogres are wicked" does not entail that there are ogres. Moreover the same holds true of the relation between "There are no ogres" and the A and E forms, "All ogres are wicked" and "No ogres are wicked." These do not entail "There are ogres" and are not rendered false by "There are no ogres" as they would be on the existential interpretation $\sim (\exists x).fx \cdot \sim gx : (\exists x).fx$; nor are they rendered true by it as they would be on the minimum interpretation $\sim (\exists x).fx \cdot \sim gx$.

None the less there is a close connection, though not entailment, between the A, E, I, O forms as used in ordinary nonmathematical and nonscientific discourse and sentences asserting the existence of members of their subject class: they have "existential import"; but it is not that of the existential interpretation of the A and E forms or of the modern transcription of the I and O forms. It consists in the following features of their use:

(1) The existential interpretation $\sim (\exists x).fx \cdot \sim gx : (\exists x).fx$ misrepresents the force of "All S is P" because what may falsify the former, viz.: $\sim(\exists x).fx$ does not falsify the latter. On the other hand a sentence of this existential form *does* entail, though it is not entailed by a sentence of the A form; for if "There are cab drivers and there are no cab drivers that are not well-read" is true, it follows that "All cab drivers are well-read" is true. Accordingly the truth of the existential sentence is a sufficient condition of the truth of the A sentence.

Further, it is also a necessary condition, but not in the same way that the truth of a sentence Q is a necessary condition of the truth of another sentence P which entails Q. For if "P" entails "Q" then if Q is false P is false; but though the truth of the existential sentence is a necessary condition of the truth of the A sentence ("All ogres are wicked" could not be true unless "There are ogres and there are none that are not wicked" is true) the falsity of the existential sentence does not necessarily render the A sentence false, but as in this instance may with other circumstances show the statement made to be neither true nor false, but, e.g., fiction.

(2) Since the truth of the existential sentence is both a necessary and sufficient condition of the truth of the A sentence, any one who in normal discourse asserts such a sentence as, e.g., "All taxi drivers are well-read," and appears to be making on this occasion a serious assertion will be properly taken to believe the corresponding existential sentence to be true. For otherwise he could have no reasons for asserting it and the assumption that people do not use descriptive sentences without good reason for believing them to be true (which of course strongly influences the whole character of empirical discourse) constitutes here a nonformal connection between the existential statement and the A form. If we want a word we can say that the A form in the absence of a special indication "presupposes" or "strongly suggests" the truth of the existential form. But these psychological terms ill convey the conventional character of the connection.

(3) The above shows the connection between the whole complex existential sentence $\sim (\exists x).fx \cdot \sim gx:(\exists x).fx$ and the A form. But the truth of the sentence $(\exists x).fx$, asserting merely the existence of members of the subject class, though it does not entail the A form, is a necessary condition of its truth in the special sense explained above. For the normal use of the A, E, I, O forms outside science and mathematics is in a context where (1) members of their subject class exist and (2) the speaker believes this. This existential condition is so much part of the conventional context for the use of these forms that if a speaker after saying, e.g., "All Smith's children are girls," added "But he has none," the addition, though not a contradiction (as on the existential interpretation it would be), and though certainly not a verification (as on the minimum interpretation), would cancel the original remark, not as something which the speaker has no reason

to believe, but as applying to nothing, not to be graded true or false, and (since it was not part of a story) pointless. But that this existential condition, conventionally required for the normal use of these forms, is satisfied, is not anything which they either state or entail; for they can be used without contradiction or loss of meaning where it is not satisfied, as in fiction. On the other hand, for a vast range of empirical sentences the logical force of "All" and "Some" as part of the subject term is determined by this convention, though its effect cannot be conveyed in the notation of quantifiers and propositional functions, for that fails either by *explicitly stating* that the existential condition is satisfied or by ignoring it altogether.

(4) The use of the A, E, I, O forms in fiction is a play upon these features of their normal usage. The storyteller's use of sentences does not in fact satisfy the conventional requirement for normal use, but he speaks *as if* they did, and thus obtains his effects. Perhaps nothing shows more clearly the connection between sentences of these forms and the existential statements which are wrongly said to be entailed by them, or by part of their meaning, than an examination of how "There are no ogres" might bear upon "Some ogres are wicked." We might say "There are no ogres" comfortingly to the crying child who has heard the storyteller say "Some ogres are wicked", or we might say it admonishingly to the storyteller. And in either case we are doing something more radical than saying "That is false" but less radical than saying "That has no sense"; we are saying "That applies to nothing." We could contradict "Some ogres are wicked" by saying "That is false: no ogres are wicked," but contradiction is a colder comfort than what we provide with "There are no ogres," for it leaves the child to face ogres with qualities other than wickedness. "There are no ogres" cuts deeper at the roots of fear: it points out that the existential conditions for a serious statement which can be graded as either true or false are not on this occasion satisfied and so "Some ogres are wicked" is neither. And of course the storyteller might himself say after the story is over "But there are no ogres" without contradicting himself, just to show that he had been telling a story, though it would defeat his purpose as a storyteller to say this while telling it. In short "There are no ogres" shows that the conventionally required context for the serious use of these forms does not hold: and showing this is an important piece of evidence that the speaker was just telling a story. Of

course, though important, it is only evidence, not proof, because alternative explanations are possible, dependent on the speaker's intention or state of mind: he may have been guilty of a deliberate attempt to mislead or a sheer misunderstanding. Moreover, if the speaker was bent on telling a story, what he said would still be fiction, even if ogres did exist.

These characteristics of the normal use of the A, E, I, O forms outside science and mathematics constitute their "existential import" and show that, while neither the minimum interpretation nor the existential interpretation conveys their meaning or special function, these two alternatives do not, as is often assumed when the Square of Opposition is attacked as inconsistent, exhaust the possibilities of interpretation. The alleged inconsistencies in the Square materialize only if, accepting these two interpretations as exhaustive, we mistakenly concede that the A, E, I, O forms are existential sentences to whose truth or falsity the existence of members of the subject classes is directly relevant. In fact they are not forms of existential statements (though they have close connections with such statements) and the existence or nonexistence of members of the subject class determines not the truth or falsity of statements of these forms but only the prior question whether the question of their truth or falsity can arise. And this being so, there is nothing to prevent all the relations represented by the Square from holding good. For in considering these relations, e.g., whether A and O are contradictories, and whether A is superimplicant to I (two relations which, on the authors' view, cannot hold for any one interpretation of these forms), we have only to ask the hypothetical question whether, *if* A were true, would O be false and I true, and the answer to this question (which is "yes") is not affected by the fact that on some occasions of use, e.g., in the event of their being no members of the subject class, statements of these forms would not be graded as either true or false. Questions of existence lie outside the scope of the Square and those who constructed it along these lines accurately interpreted the ordinary usage of these forms. Of course the Square tells us nothing about the difference between seriously true and false statements and fiction; but it depicts the logical relations between sentences which hold good independently of whether or not on any particular occasion the use made of these forms is serious statement and so true or false, or fiction and so neither.

What I have said is open to a misinterpretation which I can best preclude by dealing with the authors' remaining charge, namely, that the classical existential interpretation fails to express and the modern minimum interpretation does express an important class of universal proposition (of which they cite four) all "held to be true" (p. 180).

(1) No uranium deposits in Ohio are easy to mine.
(2) All human beings free from bacteria are free from disease.
(3) All bodies free from impressed force persevere in their state of rest or in uniform motion in a straight line.
(4) All Greek gods have human frailties.

The authors draw no distinction between these four: all, in their view, are negative existential statements and they so "translate" the first two; and all are true (together of course with their apparent contraries "All uranium deposits...," etc., "No human beings...," etc.) in the same factual though vacuous sense of true, because they correctly describe a world in which there are no Ohio uranium deposits, bacteria-free human beings, bodies free from impressed forces or Greek gods. But clearly it is necessary to distinguish between these four statements. If asked to say whether (1) was true, there being no Ohio uranium deposits, only those debarred by logical prejudices from saying it was neither true nor false would say it was true; this at least is an obvious case where we would say the question of truth does not arise and would correct the mistaken assumption which has led to the remark. (4) is a different case, for, if by "true" we mean the proposition is part of Greek mythology or of the religious beliefs of the ancient Greeks, then in this sense it is true though not vacuously, and "No Greek gods have human frailties" is in the corresponding sense false and not (as it too would be on the authors' interpretation) vacuously true; but we might also equally well say that since Greek gods did not exist the serious question of the truth or falsity of this statement cannot arise. Cases (2) and (3) are different again: they are propositions of science which might well be called true: certainly we would not say the question of their truth or falsity does not arise. But of course to see what is done by calling (3) "true," we must examine its role in the physical theory of which it is part and the way in which the theory relates to fact. This is a complex matter and involves a discussion of the sense in which contrary-to-the-fact conditionals can be called true or false. But it is clear that the truth of (2) and (3) is not vacuous

truth: they are not true because they accurately describe the world as empty of bacteria-free human beings not also free from disease, and as empty of bodies at once free from impressed forces and failing to persevere in their state of motion or rest, etc. This is simply not their role, and if it were we should have to say, in spite of the evidence of science, that their apparent contraries are also true. And this seems more than "at first sight paradoxical." But though the authors have given us no examples of statements of the form "All S is P" which we would say are true merely because there are no S's, it is also quite clear that it is not always the case that where there are no S's we should say the question of the truth or falsity does not arise. We would say this where the speaker in ordinary discourse is under the mistaken impression that there are S's and S's might conceivably have existed (uranium deposits in Ohio; Smith's children) but merely in fact do not: we would not say it where S stands for a theoretical concept of physics, and the ground for asserting it is its role as a law of a theoretical system and not its success in describing the world, though the theory as a whole may be verified in various complex ways by observation. Such general propositions of law, though they are not logically necessary, resemble in some respects necessary propositions in that they are not themselves verifiable or falsifiable by a simple appeal to the facts as general propositions of fact such as "All Smith's children are girls" are. Hence the nonexistence of S's in cases such as (3) is not a ground for calling (3) true, but it is also not a ground for saying that the statement is neither true nor false.

V

Accordingly, in order to characterise a fairy tale and no doubt other important uses of words, we must do a number of things which the formal logician is not accustomed to do. First, we must recognize that, because a sentence has a meaning which we understand and statements made by its use have logical relations with other statements, it does not follow that on every occasion of the intelligible use of the sentence a statement is made which must be either true or false, for fiction is neither. Secondly, we must recognize that, as a result of the obvious fact that certain types of empirical sentence such as the A, E, I, O forms are primarily designed for use (and so to be true and false) where objects mentioned by their subject terms exist, there is a conventional

connection between these sentences and existential sentences by which we affirm that the conditions for normal use are satisfied. This conventional connection is not entailment; and one of the major devices of fiction is the intentional infringement of the convention. Thirdly, we must shift our logical attention from the general to the particular, and we must concentrate not on the meaning, or the truth conditions, or the logical relations of statements, but on the circumstances of particular occasions of use, and on what may be called *the mode of assertion* of the sentence on the particular occasion. That is, we must enquire (1) whether the existential condition required for the normal use of a sentence is satisfied, and (2) why the speaker spoke as if this condition were satisfied. For the differentia of fiction does not lie in the general matters first mentioned, but in the use (which is in a sense a calculated abuse) of a general form of words on a particular occasion.

H. L. A. HART

New College, Oxford

WHEWELL'S PHILOSOPHY OF SCIENTIFIC DISCOVERY. II

WHEWELL'S ACCOUNT OF INDUCTION

WE NOW pass to the examination of the particular processes upon which the work of scientific discovery relies according to Whewell. He discusses them chiefly in the *Norvum Organon Renovatum*.

(a) *Outline of the Essential Steps in the Inductive Process.* Our knowledge, he reminds us, consists in applying Ideas to Facts;

> and...the conditions of real knowledge are that the ideas be distinct and appropriate, and exactly applied to clear and certain facts. The steps by which our knowledge is advanced are those by which one or the other of those two processes is rendered more complete;—by which *Conceptions* are *made more clear* in themselves, or by which the Conceptions more strictly *bind together the Facts*.[1]

These two processes he calls respectively the *Explication of Conceptions* and the *Colligation of Facts*. They involve various special processes, the nature and mutual relations of which may be indicated in a general way as follows, before each is examined in detail.

The task of inductive inquiry is the *Colligation of Facts*, that is, the *binding together of a set of facts by the invention and the introduction among them of an exact and appropriate conception, expressing them all at once*. To this task, two things are requisite: the possession of *Conceptions* and of *Facts*. Both the Conceptions and the Facts will be serviceable in proportion as they are clearly analyzed; and, therefore, preliminary to the effecting of the Colligation of Facts, there must occur a process of analysis and clarification. This process of clarification, on the Idea side, Whewell calls the *Explication of Conceptions*, and on the Facts side the *Decomposition of Facts*. These two operations constitute the first step in the progress of knowledge. In the second step, namely in the process of effecting the *Colligation* of a set of Facts, three stages representing progressive definiteness in this colligation

[1] *N. O. R.*, p. 29.

can be distinguished: *Selection of the Idea, Construction of the Conception, and Determination of the Magnitudes.* The third and final step in the induction of knowledge is the *Verification* of the colligating character of the conception that was applied to the Facts. This verification is made through the application of three tests: the possibility of *predicting* Facts by means of the conception; the *consilience* of separately induced conceptions; and the progressive *simplication of the conception* as it is extended to new cases. This summary statement of the elements of the inductive process as conceived by Whewell may be presented in tabular form as follows:

First Step: *Clarification of the Elements of Knowledge by Analysis:*
: Explication of Conceptions
: Decomposition of Facts

Second Step: *Colligation of Facts by means of a Conception:*
: Selection of the Idea
: Construction of the Conception
: Determination of the Magnitudes

Third Step: *Verification of the Colligation by:*
: Prediction
: Consilience
: Simplification

It is not to be inferred from the above, however, that the first and the second steps, at all events, take place in strict temporal succession, the first being completed before the second is begun. Rather, "they are inseparably connected with each other"[2] and go on simultaneously.

(b) *The Explication of Conceptions.* Each of the elements of the inductive process appearing in the foregoing outline will now be examined in detail. We shall begin with the *Explication of Conceptions.*

What Whewell means by Conceptions, and what relation he regards them as having to Ideas, is made clear by him in the following passage: We have given the appellation of *Ideas,* to certain comprehensive forms of thought, — as space, number, cause, composition, resemblance, — which we apply to the phenomena which we contemplate. But the special modifications of these ideas which are exemplified in particular facts, we have termed *Conceptions;* as a circle, a square number, an accelerating force, a neutral combination of elements, a genus.[3]

[2] *Ibid.,* p. 71. [3] *Ibid.,* p. 31.

By the Explication of Conceptions as so characterized, Whewell means "their clear development from Fundamental Ideas in the discoverer's mind, as well as their precise expression in the form of Definitions or Axioms when that can be done."[4] The Explication of Conceptions, he also says, "is the process by which we bring the Clearness of our Ideas to bear upon the formation of our knowledge";[5] and the criterion of clearness of an Idea is "that the person shall *see* the necessity of the Axioms belonging to each Idea; — shall accept them in such a manner as to perceive the cogency of the reasonings founded upon them."[6] The Explication of a Conception, he further says, "is effected not generally nor principally by laying down a definition of it, but rather by acquiring such a possession of it in our minds as enables, indeed compels us, to admit, along with the conception, all the axioms and principles which it necessarily implies, and by which it produces its effects upon our reasonings."[7]

This acquisition, in practice, has resulted mainly from controversies between men of science, which have indeed often assumed the form of battles of definitions. But, Whewell insists,

> these controversies have never been questions of insulated and *arbitrary* Definitions;...in all cases there is a tacit assumption of some proposition which is to be expressed by means of the definition, and which gives it its importance. The dispute concerning the definition thus acquires a real value, and becomes a question concerning true and false. The question really is, how the conception shall be understood and defined in order that the proposition may be true.[8]
>
> Definition and Proposition are the two handles of the instrument by which we apprehend truth; the former is of no use without the latter....To unfold our conceptions by means of Definitions, has never been serviceable to science, except when it has been associated with an immediate *use* of the Definitions.[9]

Definitions, thus, are not the initial, but rather the terminal, point of the progress of knowledge, and the omission of them at the beginning or during the course of an inquiry is not to be regarded as a neglect which involves some blame: "The business of Definition is part of the business of discovery;...the Definition as well as the discovery, supposes a decided step in our knowledge to have been made."[10] Definitions, moreover, can often be dispensed with, and axioms substituted for them without loss of clearness; for example, "the Idea of cause

[4] *Ibid.*, p. 49.
[5] *Ibid.*, p. 42.
[6] *Ibid.*, p. 42.
[7] *Ibid.*, p. 42.
[8] *Ibid.*, p. 36.
[9] *Ibid.*, p. 37.
[10] *Ibid.*, pp. 39–40.

which forms the basis of the science of Mechanics, makes its appearance in our elementary mechanical reasonings, not as a Definition, but by means of the axioms that 'causes are measured by their effects,' and that 'Reaction is equal and opposite to action.' "[11]

Whewell goes on to say that for any real advance in the discovery of truth, our Ideas must not only be clear, but also *appropriate*. Thus, "Aristotle and his followers endeavored in vain to account for the mechanical relation of forces in the lever by applying the *inappropriate* geometrical conceptions of the properties of the circle."[12] The injunction that our Ideas must be appropriate cannot be made use of in practice except to turn us away from labors certain to be fruitless. But although "no maxims can be given which inevitably lead to discovery," on the other hand, *"No scientific discovery* can, with any justice, be considered *due to accident,"*[13] for discovery depends upon the presence in the observer's mind of a clear and appropriate conception by which the facts observed may be analyzed and connected, and this is never the case with the minds of common men.

The Explication of Conceptions "does not admit of being much assisted by methods, although something may be done by Education and Discussion."[14] "The authors and asserters of the new opinions, in order to make them defensible, have been compelled to make them consistent. . . . The opinions discussed have been, in their main features, the same throughout the debate; but they have at first been dimly, and at last clearly apprehended," and this as the very result of the debate. Such debates are thus anything but idle controversies. They are, on the contrary, the very method (if they may be called a method) "by which the Explication of Conceptions is carried to the requisite point among philosophers."[15]

(c) *The Decomposition of Facts.* "When we inquire," Whewell says "what Facts are to be made the materials of Science, perhaps the answer which we should most commonly receive would be, that they must be *True Facts,* as distinguished from any mere inferences or opinions of our own."[16] There is, however, he maintains, no such thing as a Fact in which Ideas do not enter as an essential element: "We cannot obtain a sure basis of Facts, by rejecting all inferences and

[11] *Ibid.*, p. 40.
[12] *Ibid.*, p. 43.
[13] *Ibid.*, pp. 44, 46.
[14] *Ibid.*, p. 143.
[15] *Ibid.*, pp. 180, 181.
[16] *Ibid.*, p. 51.

judgments of our own, for such inferences and judgments form an unavoidable element in all Facts. We cannot exclude our Ideas from our Perceptions, for our Perceptions involve our Ideas."[17] The solution of this difficulty is to be found, therefore, not in seeking to exclude Ideas from Facts, but rather in trying "to discern, with perfect distinctness, the Ideas which we include."[18] This will mean that "Facts when used as the materials of physical science, must be *referred to conceptions of the intellect only,* all emotions of fear, admiration, and the like, being rejected or subdued."[19] The Facts, that is to say, are "to be observed, as far as possible, *with reference to place, figure, number, motion,* and the like conceptions; which, depending upon the Ideas of Space and Time, are the most Universal, exact and simple of our conceptions."[20] Moreover, "we are not to confine ourselves to these; but are to consider the phenomena *with reference to other conceptions also,*" e.g., in the case of sound, to such conceptions as Concord and Discord, etc.

This process of exclusion of emotional elements, and of inclusion, on the other hand, of definite relations of Time, Space, Cause — or other Ideas equally clear — into our recorded observations of facts is what Whewell means by the *Decomposition* of the complex facts of experience into their elementary facts. And although the possession of such elementary facts, "clearly understood and surely ascertained," is not sufficient to the discovery of the laws of nature, yet it is a step that must necessarily precede all such discovery. The decomposition of complex facts into simple generally leads to the introduction of technical terms by which the simple facts are described, such as light *rays, reflection, refraction, force, momentum,* and *inertia.*

In Chapter II of the third book of *Novum Organon Renovatum,* Whewell gives an account of some of the methods most useful in observing Facts with reference to the Ideas involved in them, particularly those of Number, Space, and Time. Such a discussion of methods and instruments of measurement, having no essential connection with his theory of induction, need not detain us here.

(d) *The Colligation of Facts; Induction.* Whewell's doctrine of the Colligation of Facts constitutes the most important and most

[17] *Ibid.,* p. 53.
[18] *Ibid.,* p. 54.
[19] *Ibid.,* p. 54.
[20] *Ibid.,* p. 56.

original part of his contribution to the theory of induction. We shall therefore set it forth and examine it in some detail.

Colligation of Facts, he writes, is a term which can be applied "to every case in which, by an act of the intellect, we establish a precise connection among the phenomena which are presented to our senses."[21] With Colligation so characterized, Whewell then defines induction as follows: *"Induction* is a term applied to describe the *process* of a true Colligation of Facts by means of an exact and appropriate conception. *An Induction* is also employed to denote the *proposition* which results from this process."[22] Again, when the two processes called "the Explication of the Conceptions of our own minds, and the Colligation of observed Facts by the aid of such Conceptions" are

> united, and employed in collecting knowledge from the phenomena which the world presents to us, they constitute the mental process of *induction;* which is usually and justly spoken of as the genuine source of all our *real general knowledge* respecting the external world,...*real* because it arises from the combination of Real Facts,...*general,* because it implies the possession of general ideas.[23]

> In each inference made by induction there is introduced some General Conception, which is given, not by the phenomena, but by the mind. The conclusion is not contained in the premises, but includes them by the introduction of a New Generality. In order to obtain our inference, we travel beyond the cases which we have before us; we consider them as mere exemplification of some Ideal Case in which the relations are complete and intelligible. We take a Standard and measure the facts by it; and this Standard is constructed by us, not offered by Nature.[24]

Hence, Whewell goes on,

> in every inference by Induction, there is some conception *superinduced* upon the Facts: and we may henceforth conceive this to be the peculiar import of the term *Induction.* I am not to be understood as asserting that the term was originally or anciently employed with this notion of its meaning; for the peculiar feature just pointed out in Induction has generally been overlooked. [Aristotle, for instance,] turns his attention entirely to the *evidence* of the inference; and overlooks a step which is of far more importance to our knowledge, namely, the invention of the second extreme term.[25]

It is, for instance, Whewell says elsewhere but still referring to Aristotle, "no adequate example of induction to say, 'Mercury describes an elliptical path, so does Venus, so do the Earth, Mars, Jupiter, Saturn, Uranus; therefore all the planets describe elliptical paths.' This is as we have seen, the mode of stating the *evidence* when the proposi-

[21] *Ibid.,* p. 60.
[22] *Ibid.,* p. 70.
[23] *Ibid.,* p. 71.
[24] *Ibid.,* p. 73.
[25] *Ibid.,* p. 74.

tion is once suggested, but the Inductive step consists in the *suggestion* of a conception not before apparent,"[26] which constitutes the "Second Extreme Term" of Aristotle's inductive syllogism.

When we have once invented this "Second Extreme Term," we may, or may not, be satisfied with the evidence of the syllogism; we may, or may not, be convinced that, so far as this property goes, the extremes are coextensive with the middle term; but the *statement* of the syllogism is the important step in science. We know how long Kepler labored, how hard he fought, how many devices he tried before he hit upon this *Term*, the Elliptical Motion....When he had established his premises, that "Mars does describe an ellipse about the Sun," he does not hesitate to *guess* at least that...he might...assert that "All the planets do what Mars does." But the main business was, the inventing and verifying the proposition respecting the Ellipse. The Invention of the Conception was the great step in the *discovery;* the Verification of the Proposition was the great step in the *proof* of the discovery.[27]

As to this, it might be objected that Kepler's original contribution did not in the least consist in the invention of the conception of an Ellipse — which had been formulated much earlier — but in the thinking of it in connection with the endeavor to formulate a general description of the motion of Mars; and therefore that Whewell's terming the essence of the inductive step "the invention of a conception" is unfortunate. Although in many cases of discovery a new conception is invented by the discoverer, that is not so in every case. But Whewell's statements elsewhere indicate that he would freely admit this.[28] His real meaning is abundantly clear: In every Induction, "there is a Conception supplied by the mind and superinduced upon the Facts," and although the conception may indeed be *suggested* by the facts, it is no more to be described as itself an additional fact observed like the rest, than is the key to a cryptogram to be described as itself observed in the cryptogram in the same way as the letters of it. The letters are *perceived,* the key is *thought of,* even though both the letters and the particular order in which they make sense be facts of the cryptogram.

Whewell goes on to point out that the contributions of the inventive intellect to our knowledge, to the extent that they are successful, cease correspondingly soon to be remembered as having had their origin in the intellect.

The pearls once strung, they seem to form a chain by their nature. Induction has given them a unity which is so far from costing us an effort to preserve,

[26] *Ibid.*, p. 110.
[27] *Ibid.*, p. 75.
[28] *Ibid.*, pp. 110, 111.

that it requires an effort to imagine it dissolved. For instance, we usually represent to ourselves the Earth as *round*,...we hardly can understand how it could cost the Greeks...so much pains and trouble to arrive at a view which to us is so familiar...for in what other manner (we ask in our thoughts) could we represent the facts to ourselves?...Eclipses arrive in mysterious confusion: the motion of a *Cycle* dispels the mystery. The planets perform a tangled and mazy dance; but *Epicycles* reduce the maze to order. The Epicycles themselves run into confusion; the conception of an Ellipse makes all clear and simple. And thus from stage to stage, new elements of intelligible order are introduced....Men ask whether eclipses follow a cycle; whether the planets describe Ellipses; and they imagine that so long as they do not *answer* such questions rashly, they take nothing for granted. They do not recollect how much they assume in *asking* the question;—how far the conceptions of Cycles and Ellipses are beyond the visible surface of the celestial phenomena....And thus they treat the subject...as if it were a question, not of invention, but of proof,...as if the main thing were not *what* we assert, but *how* we assert it....In collecting scientific truths by induction we often find...a Definition and a Proposition established at the same time,—introduced together, and mutually dependent upon each other. The combination of the two constitutes the inductive act; and we may consider the Definition as representing the superinduced Conception, and the Proposition as exhibiting the Colligation of Facts.[29]

We might, Whewell says elsewhere, ask whether Induction does not have a typical *Formula* such as the Syllogism constitutes for Deduction. As such a formula, it would not be enough to say that all known particulars of a given kind are exactly included in a certain general proposition, for this brings out only the *evidence* for the Induction but not the inductive step itself at all, which "consists in the suggestion of a conception not before apparent."[30] The Inductive Formula might then, he says, be something like the following: "These particulars, and all known particulars of the same kind, are exactly expressed by adopting the Conceptions and Statement of the following Proposition." Or better still, if the Clarification of the conception has resulted in a definition: "These facts are completely and distinctly expressed by adopting the following Definition and Proposition."[31] Moreover the conviction is present in the most perfect examples of induction, that the Conception and Assertion used in stating it are not only *sufficient* to express all the facts, but *also necessary*. The tabular arrangement of Induced propositions in order of increasing generality is regarded by Whewell as of so much value that he calls such tables the *Criterion of Truth* for the doctrine which they include. They are, he

[29] *Ibid.*, pp. 76–78.
[30] *Ibid.*, p. 110.
[31] *Ibid.*, p. 111.

goes so far as to say, "the Criterion of Inductive Truth, in the same sense in which Syllogistic Demonstration is the Criterion of Necessary Truth."[32]

While the framing of a Hypothesis is the Inductive act itself, the complete process of *Induction* is that of *Hypothesis* and *Verification,* or process of *trial and error,* for success in the use of which no positive rules can be given that will be of much practical value. Correct hypotheses, Whewell writes, are obtained "never without labour, never without preparation; — yet with no constant dependence upon preparation, or upon labour, or even upon personal endowments."[33] Whewell, however, probably having in mind Newton's much quoted *"Hypotheses non fingo"* insists that "a facility in devising hypotheses...is so far from being a fault in the intellectual character of a discoverer, that it is, in truth, a faculty indispensable to his task."[34] Such hypotheses, or guesses, will, of course, often or even usually, be wrong, but "to try wrong guesses is, with most persons, the only way to hit upon right ones." Our theorizing faculties "obtain something, by aiming at much more....The character of the true philosopher is, not that he never conjectures hazardously, but that his conjectures are clearly conceived, and brought into rigid contact with facts."[35] True philosophers, moreover, must possess a "pure love of truth and comparative indifference to the maintenance of their own inventions,"[36] so that if the facts are found to clash with their hypotheses, the latter are abandoned by them without hesitation.

(e) *Rules of Procedure and Stages in the Process of Colligation.* "The Colligation of ascertained facts into General Propositions," Whewell writes, "may be considered as containing three steps, which I shall term the *Selection of the Idea,* the *Construction of the Conception,* and the *Determination of the Magnitudes.*"[37] These are not so much three separate operations as three stages of definiteness in the process of colligating the facts which, as a preliminary, have been "decomposed." And although the all-important requisite for the performance of successful inductions is the possession of a fertile, sagacious, ingenious, and honest mind, certain rules and methods of procedure

[32] *Ibid.,* p. 115.
[33] *Ibid.,* p. 192.
[34] *Ibid.,* p. 78.
[35] *Ibid.,* p. 79.
[36] *Ibid.,* p. 81.
[37] *Ibid.,* p. 187.

useful in various degrees may be formulated in connection with the three stages in the colligation of facts mentioned.

(i) *Selection of the Idea.* This, in practice, amounts to the *proposing* of some scientific problem, to the *formulating* of some question concerning some set of known facts.[38] Concerning the selection of the Idea, Whewell mentions, for what little it may be worth, the rule that *"The idea and the facts must be homogeneous;* . . . thus if facts have been observed and measured by reference to space, they must be bound together by the idea of space."[39] Again, *"the idea must be tested by the facts,"* although this, he adds, can hardly be called a rule.

(ii) *Construction of the Conception and Determination of the Magnitudes.* Whewell discusses the methods applicable to the construction of the conception under two headings, according to whether facts of *quantity* or facts of resemblance are in question. As special methods of Induction applicable to *quantity,* Whewell mentions the methods of Curves, of Means, of Least Squares, and of Residues. These, of course, do not in any sense constitute original contributions by Whewell to the theory of induction. Therefore, the only point of immediate interest here is the manner in which Whewell regards them as connecting themselves with his theory of induction, and the place at which they enter it. A very brief exposition of his account of them will suffice to indicate this.

(1) *The Method of Curves.* "This consists in drawing a curve, of which the observed quantities are the Ordinates, the quantity on which the change of these quantities depends being the Abscissa. The efficacy of this method depends upon the faculty which the eye possesses, of readily detecting regularity and irregularity in forms,"[40] while on the contrary to detect the relations of number considered directly as number, is not easy. This method enables us not only "to obtain laws of nature from *good* observations, but also, in great degree, from observations which are very *imperfect,*"[41] and even to obtain "data which are *more true than* the individual *facts themselves.*"[42] This possibility of correcting the observations by the Curve, so far as it really exists, depends on the fact that though the observations may appear irregular, "the correct facts which they imperfectly represent, are really reg-

[38] *Ibid.*, p. 193.
[39] *Ibid.*, p. 193.
[40] *Ibid.*, p. 202.
[41] *Ibid.*, p. 206.
[42] *Ibid.*, p. 207.

ular."[43] Two obstacles, however, impede the application of the Method of Curves: our ignorance of the nature of the quantity upon which the changes which we are studying depend; and the complication of several laws with one another.[44]

(2) *The Method of Means.* The correction of our observations by the Method of Curves consists, virtually, in taking the *Mean* of the observations. But this may be done, without curves, arithmetically. The efficacy of the method of Means depends upon this: "in cases in which observed quantities are affected by other inequalities, besides that of which we wish to determine the law, the excesses *above* and defects *below* the quantities which the law in question would produce, will, in a collection of *many* observations, *balance* each other."[45] However, knowledge of the quantity upon which the changes that we are studying depend (their "argument") is more indispensably necessary in the Method of Means than in the Method of Curves; for, to detect the law that holds within a collection of numbers, the subcollections *within* it which constitute the dependent term of the law must be established by *a selection of our own;* while in the case of a curve these subcollections are represented by the sinuosities of the curve, which the eye may be able readily to detect.

(3) *The Method of Least Squares.* This is a method of Means the object of which is to discover the *best Mean,* or *most probable law* of a number of quantities obtained from imperfect observations. It assumes that small errors are more probable than large ones and defines the *best Mean* as that which makes the sum of the *squares* of the errors, the least possible.

(4) *The Method of Residues.* When, in a series of changes of a variable quantity *one* law has been detected by such methods as already mentioned, but that law does not fully account for the observed changes, thus leaving a *residue* of unexplained fact; that residue is itself in turn studied as the original set of observations was studied, until another law governing the quantities that constitute the residue has been detected. If this second law in turn leaves a residue, that residue is studied, etc., until the facts are completely accounted for. Whewell

[43] This, then, may be said to constitute the postulate upon which is dependent such validity as the processes of extrapolation and intrapolation possess.

[44] *Ibid.*, p. 208.

[45] *Ibid.*, p. 202.

mentions Herschel's discussion of this method, stating that, as described by Herschel its application is not limited to quantitative data.

As inductive methods depending upon *resemblance,* Whewell mentions the method which appeals to the Law of Continuity, the Method of Gradation, and the Method of Natural Classification.

(5) *The Law of Continuity.* "A quantity cannot pass from one amount to another by any change of conditions, without passing through all intermediate degrees of magnitude according to the intermediate conditions."[46] Although this law is primarily applicable to quantities, Whewell treats of it under the heading of resemblance because "its inferences are made by a transition from one degree to another among contiguous cases." The Law of Continuity "is a test of truth, rather than an instrument of discovery";[47] it enables us to detect the falsity of Inductions which would involve a violation of it. The evidence of the Law of Continuity itself is of the same intuitive nature as in the case of other Fundamental Ideas.[48]

(6) *The Method of Gradation.* When classes of things and properties have been established in virtue of comparisons in respect of agreements and differences, "it may still be doubtful whether these classes are separated by distinctions of opposites, or by differences of degree". To settle such questions the Method of Gradation is used. It consists in "taking intermediate stages of the properties in question, so as to ascertain by experiment whether, in the transition from one class to another, we have to leap over a manifest gap, or to follow a continuous road."[49]

(7) *The Method of Natural Classification.* This consists "in grouping together objects, not according to any selected properties, but according to their most important resemblances; and in combining such grouping with the assignation of certain marks of the classes thus formed."[50] What Whewell means by speaking of a resemblance as "important" and as giving rise to a classification that is "true" or "natural" is that the resemblance is one on the basis of which *general propositions become possible.* This, he says, is "the criterion of a true

[46] *Ibid.,* p. 221.
[47] *Ibid.,* p. 224.
[48] The advent of the Quantum Theory would then throw considerable doubt upon the reliability of the intuitive evidence upon which Whewell alleges the Law of Continuity to be based.
[49] N.O.R., p. 224.
[50] *Ibid.,* p. 228.

classification,"[51] and distinguishes Natural classifications from Artificial classifications based upon *arbitrary* definitions. In Natural classification, we "find our classes in Nature, and do not make them by marks of our own imposition," to which exceptions constantly would be found.

(f) *The Notion of Cause.* Whewell concludes the discussion of the methods of Induction applicable to Quantity and Resemblance with a statement that they "commonly lead us to *Laws of Phenomena* only." He adds, however, that "Inductions founded upon other Ideas, those of Substance and Cause for example, appear to conduct us somewhat further into a knowledge of the essential nature and real connexions of things."[52] In proceeding to such inductions, however, "we can no longer lay down any Special Methods by which our procedure may be directed."[53]

On the part of a writer thoroughly acquainted, as Whewell was, with Herschel's *Discourse,* and therefore with the "methods" to which Mill later gave the names of Methods of Agreement, of Difference, and of Concomitant Variations, the last statement quoted is rather startling. The explanation of it is to be found in the fact that Whewell is here essentially concerned with *discovery* and that he does not admit these methods to be methods of discovery: "They take for granted the very thing which is most difficult to discover, the reduction of phenomena to formulae" such as Mill sets forth in terms of A, B, C, and a, b, c, etc., to represent the elements of antecedent and sequent phenomena. But where, Whewell asks, "are we to look for our A, B, C, and a, b, c? Nature does not present to us the cases in this form."[54] The characters of Agreement, Difference, and Concomitant Variation may well belong to the causal relation, but they then constitute the *object* of discovery, not the method. And he quotes with approval Herschel's comment upon Bacon's "Prerogative Instances," of which they are cases, to the effect that the difficulty is to find them, not to perceive their force when found. It is true that Herschel nevertheless presents his five statements on the characters of the causal relation and his ten "rules of philosophizing" based upon them as useful for guiding and facilitating our *search* for causes, but he is well aware of the applicability to them of his

[51] *Ibid.,* p. 229.
[52] *Ibid.,* p. 232.
[53] *Ibid.,* p. 228.
[54] *Ph. of D.,* p. 263.

own remarks concerning Bacon's Prerogative Instances. And he conceives his rules as methods of discovery mainly in the negative sense: they are principles of *criticism* of the hypotheses concerning causes, which we frame. The method of Discovery is, for him no less than for Whewell, essentially the method of hypothesis, i.e., the method of Trial and Error. In the case of Mill's discussion of the "Methods," it is, as usual in his writings, difficult if not impossible to determine which of his contradictory statements represents his true view. In spite of the distinction between proof and discovery which is made so much of by him and his followers,[55] the very first line of the famous chapter of the *System of Logic* on the "Methods of Experimental Inquiry" refers to them as "modes of *singling out*" (my italics) the causes or effects of a phenomenon from among its antecedents or sequents and, on the next page still more explicitly, he speaks of "the mode of discovering and proving laws of nature" which he has been discussing.

But even granting Whewell's objection to the "methods" as described by Herschel and Mill, it may yet well be maintained that they are often of a good deal of importance at least in *suggesting* causal hypotheses — certainly of no less importance than the methods which Whewell acknowledges as of value to that end — and therefore that they should have been given by him a place at the point of his exposition which we are now considering. At any rate, they are of commanding importance as methods *of verification of causal hypotheses,* and Whewell's neglect of them under that heading also constitutes a grave fault. Probably, it is due in no small measure to the haziness of his notion of cause, complicated by the preoccupation evident throughout in his discussion, that that notion shall be so conceived as to enable us to speak of God as the supreme cause of the universe.[56] This, it may be noted, furnishes a clear, even if an unfortunate, example of what he means when he contends that definitions are ever so framed as to make some contemplated proposition true. Brief mention of some of his characteristic statements in regard to causation will make evident the complete negligibility of his attempt to analyze the notion.

By Cause, Whewell declares, "we mean some quality, power or efficacy, by which a state of things produces a succeeding state. Thus the motion of bodies from rest is produced by a cause which we call

[55] For example , Bain, *Logic,* II, app. ii.
[56] Compare Liard, *Les Logiciens anglais contemporains,* p. 13.

Force: and in the particular case in which bodies fall to the earth, this force is termed *Gravity.*"[57] And later he writes as follows: "When one event gives rise to another, the first *event* is, in common language, often called the cause, and the second the effect,"[58] as when one billiard ball, striking another, turns out of its path. For the purpose of expressing general and abstract truths concerning cause and effect, however, the term cause must not be applied to such occurrences, "but to a certain conception, *force,* abstracted from all such special events, and considered as a quality or property by which one body affects the motion of the other. And in like manner in other cases, cause is to be conceived as some abstract quality, power, or efficacy, by which change is produced; a quality, not identical with events, but disclosed by means of them." That Cause as so conceived is not an idea derived from experience is proved, Whewell believes, by the fact that we know the proposition "Every event must have a cause" to be true "not only probably, and generally, and as far as we can see; but we cannot suppose it to be false in any single instance."[59] And in further evidence of the nonempirical origin of the idea of cause, he adduces the fact that we apply that idea to infer the existence of a First Cause of a nature different from the events themselves, which would be unwarranted if experience were the source of the Idea of Cause!

It is perhaps superfluous to remark that the legitimacy of such an application of the idea is not in the least established by the fact that some people do so apply the idea. Moreover, the proposition "Every event must have a cause" not only *can* be supposed false, for aught Whewell shows to the contrary, but in fact has been regarded as false or doubtful by many persons since Hume. And with regard to the characterizing of Cause as Force, or in general as "power or efficacy," it is obvious that when this is done, and at the same time forces or powers are declared (as by Whewell no less than Herschel) never to be observable but only to be "inferred" from their "effects," all that has been effected is a purely verbal substitution, viz., that of the word Force for the word Cause, and does not explain or clarify anything. It is but a case of the time-worn practice of giving a name to that for which one is inquiring and calling that name the answer. Whewell, it

[57] *H. of Sc. Id.,* I, 173.
[58] *Ibid.,* p. 184.
[59] *Ibid.,* pp. 173–174.

may further be remarked, wholly fails to support his assertion that, for the purpose of expressing general and abstract truths concerning cause and effect, the word Cause must not be applied to events or occurrences. Since, as he himself observes, the word *is* so applied in common language, some show of reasons for departing from current usage would certainly appear to have been in order. But his only reason for the assertion seems to have been that already mentioned, viz., that God is not an event or an occurrence, and that Cause ought to be so defined as to make true the proposition that God is the cause of the universe. To Comte's injunction that "science must study only the laws of phenomena, and never the mode of production," Whewell replies that "the laws of phenomena, in many cases, cannot be even expressed or understood without some hypothesis respecting their mode of production. How could the phenomena of polarization have been conceived or reasoned upon, except by imagining a polar arrangement of particles, or transverse vibrations, or some equivalent hypothesis?"[60] But while the justice of the reply may be conceded, it must be noted once more that what it thus appears necessary to suppose is not the existence of a "force" or "forces," but on the contrary, of such entities as *particles,* and of such *events* as the transverse vibration of those particles.

Whewell, however, is prone to regard axioms as of more value than definitions in the clarification of conceptions, and we therefore quote the three axioms relating to the idea of Cause which he gives,[61] and for the self-evidence of which he refers us to our own thoughts.[62] The first is: *"Nothing can take place without a cause."* To this, Whewell says, we irresistibly assent as soon as it is understood"; The second axiom is: *"Effects are proportional to their Causes, and Causes are measured by their effects";* and the third: *"Reaction is equal and opposite to action."* This means that Cause and Effect mutually determine each other, and Whewell erroneously regards this as implying that in direct causation, Cause and Effect are not successive, as is generally asserted, but strictly simultaneous. The current maxim, that Cause precedes Effect is true, he thinks, only when (as usually), *cumulative* effect, and not *direct* effect, is considered. Thus if a ball

[60] *N.O.R.*, p. 125.
[61] *H. of Sc. Id.*, I, 185ff.
[62] *Ibid.*, p. 184.

A strikes a ball B, and B a ball C, the motion of C can be spoken of as the effect, though not the direct effect of the impact of A, this illustration being quoted by Whewell from Herschel's review of his book in the *Quarterly Review,* already cited.

(g) *The Process of Verification.* Verification, in Whewell's view, is a most important element of the inductive process. Three different tests of hypotheses are discussed by him.

The first is that of *Adequacy.* The hypotheses that we entertain should be sufficient to explain all the phenomena that we have observed. Whewell, in this connection, remarks that even if a hypothesis only *approximates* to this desideratum, it may yet be of value: "hypotheses may often be of service to science, when they involve a certain portion of incompleteness, and even of errour"[63] for "if our scheme has so much of truth in it as to conjoin what is really connected, we may afterwards duly correct or limit the mechanism of this connexion." Thus, he says, it is after all true that "nature *does* abhor a vacuum and does all she can to avoid it," even though her power to avoid it is not unlimited, and her exertions to do so are determined by the pressure of the circumambient air. However, in spite of the value that partially adequate hypotheses may have, "we are never to rest in our labours or acquiesce in our results, till we have found some view of the subject which *is* consistent with *all* the observed facts."[64]

The second test of a hypothesis consists in its capacity "to *foretell* phenomena which have not yet been observed; at least all phenomena of the same kind as those which the hypothesis was invented to explain."[65] "The prediction of results, even of the same kind as those which have been observed, in new cases, is a proof of real success in our inductive processes".[66]

The third test that Whewell mentions is the capacity of a hypothesis to explain and predict cases of a different kind from those which were contemplated in the formation of the hypothesis. When this takes place, we have what he terms a *"Consilience of Inductions";* that is, two laws obtained by independent inductions and concerning apparently heterogeneous classes of phenomena turn out to be, both of them, deducible

[63] *N.O.R.,* p. 83.
[64] *Ibid.* p. 85.
[65] *Ibid.,* p. 86.
[66] *Ibid.,* p. 87.

from one and the same hypothesis. This constitutes the most striking and convincing test of the correctness of a hypothesis. Such a hypothesis may equally be described as *rendering consilient* separate inductions, or as *tending to simplicity* and harmony, or again as constituting an ascent to a higher degree of *generality*. This third test of Whewell's is thus in its essence identical with that constituted by the principle which Sir William Hamilton has called the "principle of parsimony,"[67] and with the well-known maxim connected with the name of William of Occam.

Considering the test constituted by the "simplicity" of a hypothesis, Whewell says that the various elements of a hypothesis are often not thought of all at once, but on the contrary one added after another, on the occasion of different researches. In the case of true theories,

> all the additional suppositions *tend to simplicity* and harmony; the new suppositions resolve themselves into the old ones, or at least require only some easy modification of the hypothesis first assumed: the system becomes more coherent as it is further extended. The elements which we require for explaining a new class of facts are already contained in our system. Different members of the theory run together, and we have thus a constant convergence to unity. In false theories, the contrary is the case. The new suppositions are something altogether additional; — not suggested by the original scheme; perhaps difficult to reconcile with it. Every such addition adds to the complexity of the hypothetical system, which at last becomes unmanageable, and is compelled to surrender its place to some simpler explanation.[68]

As examples may be mentioned the ancient astronomical doctrine of eccentrics and epicycles, the Cartesian system of vortices, and the doctrine of phlogiston.

CONTROVERSY WITH MILL OVER THE NATURE OF INDUCTION

In the second chapter of the third book of his *System of Logic*, Mill discusses at length Whewell's use of the term induction, which he deems improper as "confounding a mere description, by general terms, of a set of phenomena, with an induction from them." When, Mill says, a navigator sails along the shore of an unknown land and eventually (without having changed the course of his ship with reference to the shore) returns to the point from which he started, he concludes that the land in question is an *island*. This is not a generalization of his observa-

[67] *Discussions on Philosophy* (2d ed.; London, 1853), pp. 628–631.
[68] *N.O.R.*, p. 91.

tions; it is not an inference, in the sense of an assertion going in any way beyond those observations; it is simply a *summary description of his observations*. And the matter stands likewise, Mill says, with regard to Kepler's proposition that the path of the planet Mars is an *ellipse*. To apply the conception of an ellipse to the observed places of Mars was but to give a summary description of them; it was not an induction. "The only real induction concerned in the case, consisted in inferring that because the observed places of Mars were correctly represented by points in an imaginary ellipse, therefore Mars would continue to revolve in that same ellipse," and also in inferring that the positions of the planet between observations were on the same regular curve as the observed positions. But, Mill says, "these inferences were so far from being a part of Kepler's philosophical operation, that they had been drawn long before he was born. . . . He merely applied his new conception to the facts inferred, as he did to the facts observed." And he did not "(which is the true test of a general truth) add anything to the power of prediction already possessed."

That a navigator's statement that the land he has kept in sight is an island is *more* than a summary description of his observations, however, is evident as soon as we reflect that, so far as the observations supposed go, the land in question might be not an island but a continent containing an inland sea, which the ship has circumnavigated. To say that an assertion concerning some observations goes beyond them need not necessarily mean that it generalizes them. It may go beyond them in the sense of asserting that with the facts observed go certain other facts which were not observed and which are not mere extrapolations or intrapolations, but facts of a different sort. For instance, to call the land in sight of which one has kept until one returned to one's starting point an island is to assert something concerning the relative sizes of the continental and water areas, or concerning the right or left curvature of the shore with regard to the ship's course, since, on a globe, it would be in some such terms that the distinction between an island and a continent containing an inland sea would have to be defined. Mill does not perceive that increase in our power of prediction, which he requires, occurs not only when we discover a new law, but also when a concretely present fact is discovered to be a case of a kind, of the properties of which we already have knowledge. In other words, the minor instead of the major premise of a syllogism

may be what was as yet unknown, and with knowledge of it comes power of prediction concerning the subject of that minor.

Whewell would acknowledge that the idea of ellipticity as applied to the orbit of Mars does summarize our observations in the sense that it states them all at once, but not in the sense that it was to be obtained from them by a mere process of summation. Moreover, as Venn pointedly remarks,[69] the orbit of Mars, as a bare matter of fact, is *not* an ellipse. From the purely empirical standpoint which was Kepler's, the observations of positions out of the elliptical path were data of precisely the same importance as any others. They were not "deviations" until a "normal" orbit had been conceived. Kepler could not have *seen* the ellipse in the facts, first because it is not there, and second because the path is so nearly circular that, if it were displayed, no ordinary eye could detect that it was not a circle.

What Kepler did was thus neither to "see" the ellipse in the facts, nor to "sum them up" and find the result an ellipse. Rather, as Whewell maintains, Kepler did something exactly analogous to what is done when the key of a cipher is being discovered. He thought of an hypothesis from which all the known facts, and others as yet unobserved, could be logically deduced. And there is a vast difference between stating what one perceives (describing), and stating that what one perceives is such as it would be if a certain conjecture were true (diagnosing). Whewell is undoubtedly right in maintaining that it is through such acts of discovery that science progresses.

Whether such acts are to be called "inductions," however, is another question, which is essentially one of terms. Whewell, as we have seen, acknowledges that this is not the traditional meaning of the term. But if the term induction is to be used, as it generally is, to denote the process by which science grows, then certainly the discovering of a correct hypothesis (whether of fact or of law) has a better claim to the name of induction than the more or less mechanical act of extrapolation or intrapolation by which generalizations are obtained. And etymologically, induction, i.e., leading in, would describe the leading in of the colligating conception no less accurately than it describes the leading in of the particulars to be generalized.

Mill objects to Whewell's view of induction also on the ground that

[69] *Empirical Logic* (2d ed.), p. 354 n.

"induction is proof,"[70] and that Whewell's theory passes over altogether the question of proof. But of course, this is not so. Whewell on the contrary emphasizes the need of *verifying* our hypotheses; and the tests which he indicates to that end have been considered above. Whewell, as we have seen, contends that the method of discovery is that of trial and error. But that very method consists in *proving* true, or false, each hypothesis thought of, in its turn. That is precisely what differentiates a discovery properly so called, from a mere guess never tested.

Moreover, Mill's emphatic assertion that induction is proof, should not be taken too seriously. For one thing, he does not himself stick to it very strictly. In an earlier passage he defines induction as "the operation of *discovering and* proving general propositions."[71] Also, to the assertion that induction is proof, he adds immediately that "it is inferring something unobserved from something observed" — a statement which certainly describes discovery more nearly than proof; for proof consists in adducing evidence in support of a proposition already thought of, not in the inferring of something that one had not hitherto thought of. However, the probability is that when Mill said that induction is proof what he was thinking of were the "Four Methods" which he adopted from Herschel's *Discourse*.

ESTIMATE OF WHEWELL'S IMPORTANCE

Of Whewell's view as a whole, it may be said that it defines induction as the discovery of hypotheses adequately accounting for known facts. For him, hypotheses concerning causes would constitute only one species among others. Adequate hypotheses are discovered by the method of trial and error, each hypothesis thought of being tested in turn against the facts, until a hypothesis is found which the facts verify. That other aspect of Whewell's view, according to which the correct hypotheses are "necessary truths" apprehended by (progressive) intuition, is reconcilable with the doctrine just described only if the process of comparing hypotheses with facts is conceived as essentially a device for the clarification of the meaning of our hypotheses. It can be so conceived, of course, although perhaps rather artificially. Whewell's doctrine on the subject of necessary truths, however, is at least

[70] *System of Logic* (8th ed.), p. 222.
[71] *Op. cit.*, p. 208. (My italics.)

in part rooted in misapprehensions concerning the meaning of "necessary." As he uses the term, it evidently means for him "absolutely necessary." He fails to see that whatever is "necessary" is *necessitated by* something or other, i.e., that one can never say that anything is necessary, simply, but only that it is necessary *relatively to* something else. Absolute, i.e., nonrelative, necessity is therefore no less of a contradiction in terms than would be a childless father. The problem which is important for the theory of knowledge is not whether there are necessary truths — which may be granted — but what exactly are the grounds of their necessity. This problem Whewell never discusses adequately. Concerning it, we find in his writings only echoes of Kant's proposed solution, than which they are still more unsatisfactory. Whewell's importance in the history of theories of induction is owing mainly to three things. One is his insistence on the thesis that proposition and definition are the two handles of the instrument by which knowledge grows, and the admirable way in which he makes clear the relation of definitions to propostions. The second thing is that Whewell's doctrine is the most conspicuous example, up to his time, of an attempt to base a detailed and concrete philosophy of science upon essentially Kantian epistemological premises. But the third and most significant thing is that Whewell is the first to formulate a comprehensive and systematic theory of induction throughout in terms of the so-called Newtonian method of Hypothesis — Deduction — Verification.

C. J. DUCASSE

Brown University

DISCUSSION

NOTES ON SANTAYANA'S *THE LAST PURITAN*

IN THE Prelude to his novel, Santayana tells us that the tragedy of Oliver was "the tragedy of the spirit when it is not content to understand but wishes to govern."[1] The subsequent development of the character of the hero reveals the truth of this maxim in its cruelty. Embued with the puritan sense of duty, Oliver found himself faced with many troublesome responsibilities which accrue to leaders. He felt that he had to do "good" in the world, that he must dedicate his life to "truth, to living in the presence of the noblest things we can conceive,"[2] while at the same time he was fully conscious that the carefree attitude of Lord Jim and Mario made life more enjoyable. The first contacts with Lord Jim seemed to offer Oliver an "escape from moral slavery," but he soon found that even this friendship turned into "yet another commitment, yet another anxious and sorrowful duty," through the entanglements which Lord Jim's irresponsibility involved. Santayana represents both Lord Jim and Mario as leading much freer lives than Oliver, a freedom which he also portrays Oliver as envying without being able to achieve. But this depiction does not mean that Santayana is the champion of Jim and Mario, for both men lived too much in the realm of matter to be persons whom Santayana would totally admire. Their function is to place in sharp contrast the fallacy of Oliver's attitude toward the concrete facts and events of the everyday world. When the author closes his book with the injunction that any future worth having will spring from men like Mario, he is not setting up the Marios of this world as model individuals. He means only that for those who have Mario's outlook regarding matter will the future be rewarding. Santayana could not champion Mario as the ideal type any more than he could Lord Jim; but he can and does use their conformative indifference to the realm of matter as illustrative,

[1] *The Last Puritan* (New York: Charles Scribner's Sons, 1940), p. 10.
[2] *Ibid.*, p. 582.

by contrast, of what he means by the tragedy of the spirit which wants to govern rather than understand. "Fortune will never smile on those who disown the living forces of nature," and Oliver is in effect disowning them when he constantly strives to change and pattern them after his abstract perfectionist standards.

Oliver's ideals were general and undirected for the most part, a fact which led him into trouble; but, for Santayana, even the man who strives for a moral perfection more specific and controlled than Oliver's, places more interest upon governing natural forces than upon understanding them. The fate of all such men will be the fate of Oliver, who went through life convinced on puritan grounds that it was wrong to be a puritan but unable to be anything else. Santayana feels that "an unprejudiced man will be ready and happy to live in any class of society; he will find there occasion enough for his merriment, pleasure and kindness."[3] However, he will do so only if he recognizes the power and right of the realm of matter and conforms to its laws. Those spiritual idealists, such as Oliver Alden, who look over "the heads of nature to a First Cause, and beyond the vicissitudes of life to a supreme good," or to goodness in general, are not merely denying "some philosopher's sorry notion of matter...but the reality of our animal being, the fact that we are creatures of time rooted in a moving universe in which our days are numbered."[4] Matter cannot be denied since it is in matter that we live. It is there that man's hope lies: "Thence he sprang, on that he feeds, and there he must leave his mark, if he would render existence more friendly to the spirit."[5] But once matter is recognized as a dominant force in life, the wise man will cease trying to change or alter it according to his ideals. With matter accepted, the mind is then free to carry on its flights of imagination and fancy in the realm of spirit. It was these free flights of the mind which Oliver in reality craved and needed, but his sense of duty and perfection kept him from accepting the role of things in his life. Thus, Santayana draws an extended criticism of the contortions such a refusal involves.

For similar reasons, Santayana rejects the Vicar's philosophy, for the Vicar represents the mystic who renounces this world because he cannot live in it. When he walks into his pulpit, he leaves this world and enters an ideal realm in which alone he is at home. He does not completely forsake the things of this world, for he continues to preach

[3] *Persons and Places* (New York: Charles Scribner's Sons, 1944), p. 12.
[4] *Realms of Being* (New York: Charles Scribner's Sons, 1942), p. 190.
[5] *Ibid.*, p. 72.

to his congregation, but his sermons are more of an opportunity of escape for him than they are conscious endeavors to better the lot of his parishioners. Oliver would have liked to take up this philosophy; in fact, it was the mild scorn of this world and the devotion to the ideal that bound Oliver and the Vicar in a close friendship. But Oliver could not escape his puritan conscience long enough to enjoy the evident bliss of the Vicar's spiritual life. He rejected both the Vicar's ideal philosophy and Mario's carefree indifference, in spite of the charm both held for him, because his puritan background had led him to believe that "there was a supreme allegiance, a dedication to truth, to mercy, to beauty" which was "infinitely to be preferred" to the "motley experiences" and the "treadmill of bitter amusements" which he recognized as the world. But he could not forsake the world for these ideals of truth and beauty; something compelled him to try to make himself and the world better, and he could not see that either Mario or the religious Vicar were doing these things. The Vicar felt the same allegiance, but he did very little to make the world conform to these ideals, and Mario merely skipped through life with a devil-may-care attitude.

Mr. Vivas[6] interprets this wide gulf between the Vicar and Mario as a change in Santayana's position about the marriage of spirit and matter; but I do not think this is a just conclusion to draw from *The Last Puritan.* While it is true that spirit and matter are severed in the Vicar and Mario, it does not seem to me that it is Santayana's intention to have us conclude that the two cannot be brought together. We should not read the Vicar's and Oliver's intransigent adherence to their spiritual ideals as evidence of Santayana's complete admiration, for they are only two more examples of the tragedy of those who fail to accept the authority of things. But equally well, we must not see Mario as Santayana's final conclusion. To make either one of these inferences would be to read Santayana as asserting that spirit and matter are incapable of union, a conclusion which is false; while Mario and the Vicar could never be reconciled, spirit and matter can. As Santayana remarks, while interpreting the Christian Gospels, nature "cannot be intrinsically contrary to spirit, otherwise spirit could never have become incarnate in Christ or more or less in all sensitive animals."[7] Later in the same book, he insists that, in order to see that spirit and matter are not opposed,

[6] "From the Life of Reason to the Last Puritan," in *The Philosophy of George Santayana* (Evanston, Illinois: Northwestern University, 1940), p. 349.

[7] *The Idea of Christ in the Gospels* (New York: Charles Scribner's Sons, 1946), p. 50.

> we must banish the fanatical notion that matter is something evil or wholly negative or a mere impediment to the spirit. A divine person who assumes a human soul and body and enacts an earthly life of his free accord...cannot hate or despise matter. Like his Father, who found matter an indispensable medium for the creation, he does not come to destroy matter but to reanimate it: not to separate the souls of men from their bodies but to endow them, when redeemed, with those bodies renewed and rendered perfectly obedient to their souls.[8]

In brief, the Vicar, with his spiritual contempt of matter, and Mario, with his materialist indifference to spirit, are poles apart, but they are not evidence that spirit and matter are forever sundered in Santayana's philosophy. In admiring Mario, Santayana is not changing his position in favor of the "young fop, capable of living licentiously and irresponsibly," as Mr. Vivas[9] concludes, he is merely attempting to show that what is of value in Mario is his complete acceptance of the realm of matter. What Santayana renounces in Mario and what he admires in Oliver is the dedication to spirit and the life of the mind, which is lacking in the former and overbalanced in the latter.

It is clear that Santayana means to include in the realm of matter the physical aspects of man's body and the external world as well as his social environment. The frequent charge made against Santayana by moralists is that he is unconcerned with man's relations with man, that he turns his back upon social and political ills, that he has withdrawn himself from the world of human striving and developed a callousness towards human suffering. There is much justice in these charges, but the above brief analysis of *The Last Puritan* reveals that we cannot accuse Santayana of advocating a complete indifference to nature and to society; for it is his main contention that these powers, which for him are just aspects of matter, must be reckoned with and their demands met. The contention, to be sure, is not built upon a moral ought, but rather upon the conviction that, if man wishes to be happy, this is the only solution. Spirit and matter, whether in their most general metaphysical sense or in their more limited social meaning, embodying the contrast, individual–society, are not separated by Santayana; but neither are they joined with the view in mind that man owes it to society or to nature not to turn away. The union is a *natural necessity* because its denial in either direction results in a contradiction of man's nature. This contradiction applies especially to the denial of physical matter, since man is forced to live within the physical environment. But it is no less true that man has to live within a social structure, it being very difficult if not impossible for him to

[8] *Ibid.*, p. 74.
[9] *Op. cit.*, p. 349.

isolate himself from others. Shall we recognize this social context in the same manner as Santayana recommends that we recognize physical matter: pay homage to its demands without exacting our own demands from it? The antithesis, spirit–matter, clearly entails for Santayana the antithesis, mind–body; but *The Last Puritan* shows equally clearly that he would have it encompass also the opposition, individual–society. One of the main objectives of his novel is to urge us to extend the solution of the mind–body problem to the individual–society problem. The individual seeking happiness will wisely accept his society for what it is, refraining from any efforts to impose patterns upon it. The result will be individual freedom to follow personal goals and ideals. The aims and objectives most rewarding to man are those which are not contrary to man's society and its demands but which are also not dependent upon the social context. Santayana firmly believes that an individual's happiness can best be achieved when he has attained independence from his social context as well as from his physical context, without passing beyond the necessary equilibrium within these matrices.

Santayana seems to have worked out a solution to the mind–body or spirit–matter problem before he reached a solution to the individual–society problem. He seeks to bridge the gap between the dualistic separation of mind and body by insisting that the nature of mind or spirit, especially of *human* spirit, is to be embedded in matter. By studying the intrinsic nature of spirit and matter, he concludes that their separation is unnatural and, from the point of view of spirit, detrimental to its essential desires. But the very structure of this union of spirit and matter precludes mutual participation. The mind of man does not find its goals and ideals in matter, even though they cannot be realized except by a recognition of the power and significance of matter. So long as the proper allegiance is paid to the realm of matter, so long, that is, as we do not try to mold nature or society to our ideals, we will be able to achieve happiness and freedom. It is this solution to the more general problem of the relation between the mind and the body which Santayana has incorporated into his novel and applied to the relation between the individual and his society. It is at this point — the transfer of his metaphysical solution to the problem of the individual and his society — that many of us feel a strong opposition to Santayana's position. Even in his novel, where he is dealing directly with individuals and their social relations, it is the mind–body problem which determines the individual–society relationship. In following this procedure, he stands in sharp contrast with other contemporary novelists

such as Hemingway, Kafka, or Malraux, for these writers have first looked at the problem of the individual and his society, rather than at the more general problem of the relation between spirit and matter. They have sought to depict individuals perfectly happy in complete isolation from their fellow men or else reduced to a minimum of social relations. (Ch'en and Kyo in *Man's Fate,* bound together with a few revolutionaries trying to remold society; Henry and Catherine in *A Farewell to Arms,* fleeing their chaotic, warring society to seek happiness in their mutual love; K in *The Castle,* striving to find some order in an orderless existence.) In the attempt each of these novelists has failed. Malraux's revolutionaries lose the fight and their lives; Henry's and Catherine's love is shattered through death; and K arrives at the tentative conclusion that only within a society can happiness be found. The alternative suggested by Malraux, Hemingway, and Kafka is that the individual must turn to a social context in order to find his happiness; but all three writers share the general conviction that modern society is insufficient to support the individual in his quest for happiness. In this conviction they agree with Santayana. Instead of taking his individualistic solution, however, they all show a belief in the necessity of a compromise. These novelists are closer to common opinion today in this belief than is Santayana, for it is a little-held conviction that the individual can isolate himself successfully from the rest of the world. Much of what Santayana says should be recognized as sane advice, pointing the way toward at least one aspect of the solution of the individual–society problem, but the novelists referred to above have laid bare the fallacies of the Santayanian solution carried out in its entirety. The fault of the solution lies in the assumed weakness of the connection between spirit and matter, between the individual and his society. The contemporary novelists suggest that this connection is more intimate than Santayana allows, at least on the individual–society level. It is this perception which serves to balance Santayana's too individualistic solution.

It has become rather commonplace to point out that the growth of modern industrialism and the consequent rise of capitalism have considerably altered the values of man. The values which the so-called intellectual recognized, those that are sometimes referred to as the specifically human values (secondary as opposed to primary qualities of science), were relegated to an inferior status. Idealists, such as Proust and Santayana's Vicar, who were devoted to these human values, saw in this split a force which threatened to drain all meaning from the lives of men. Consequently, they turned their backs on matter

and attempted to live in the ideal half of existence. They became almost mystical in their outlook, scorning material existence for the sake of the spirit's union with Pure Being. They were unable to find any consolation for the spirit in matter; but, since matter played such an important and commanding role in their lives, these men were constantly in danger of unhappiness, for they never knew when that scientific primary world would rise up and destroy their spiritual ideals. It is the lesson of *The Last Puritan* that such an attitude will never be successful, will never yield the happiness which such men seek. A rejection of matter does not permit those human values to be realized but instead keeps them forever at a distance as ideals to be sought. Santayana feels that a complete rejection of matter in the interest of spirit can lead only to unhappiness, as it did in the case of the Vicar. His entire philosophy, especially as expressed in his novel and in some of his early sonnets, can be summed up in a phrase which he uses in his autobiography: "obedience to matter for the sake of freedom of mind." He would therefore seem to stand for a combination or fusion of Proust and Malraux, of the Vicar and Oliver.

The breakdown of this friendly solution of the problem of mind and matter comes when the life of mind becomes interested in problems which affect the body, when the individual's aspirations influence and are influenced by his social milieu. Santayana's own ability to be at home in the realm of matter appears to rest in part on the fact that the values which he enjoys in the realm of spirit are divorced from any real relation with matter; but this ability also stems from his skill at ensconcing himself in social milieus which have not made vital demands upon his intellectual goals. In a society which still permits the human values to be realized, his recommendation to conform to matter for the sake of mind is of some worth, although it is questionable whether one is not then destroying one's own self in thus turning away from society. I do not think science has produced a society which does not permit these values to be realized, so that Santayana's recognition of the importance and even of the beauty of the scientific world and its necessity for the spirit embodies a sane and common-sense solution of the dualism which has troubled so many men in our modern age. There have been too many last puritans trying to impose an ideal pattern upon an existence which is already formed. The objective is to meet the environment, to come to terms with it, in such a way that those ideals or human values which science and industrialization have largely subdued or ignored may be realized and supplemented in and by the world of science. It should be recognized, however, that coming

to terms with the environment does not always mean mere passive acceptance. Modern science is showing us many ways in which we can effect this result. Our mistake has been to use the knowledge of modern science to attempt to conquer and govern the realm of matter, instead of using it to meet the demands of this realm so that we can have more freedom in the realm of spirit. This is where *The Last Puritan* teaches a profitable lesson. But we cannot deal with the demands of society in the same way: we cannot seek only to comply with its demands and then turn our backs upon it. The demands of society must be subject to control and alteration by the individual and the individual cannot consider himself as separate from his fellow men. It is here that the artistic products of some of our contemporary serious novelists have served to augment Santayana's solution of the relation between the individual and his society. They have seen and understood better than Santayana the necessity of an intimate connection between man and man.

JOHN W. YOLTON

Oxford, England

PROFESSOR GOUDGE'S QUERIES WITH RESPECT TO MATERIALISM

IT IS always a pleasure for an editor to read a fair and yet searching review of a book to which he has devoted time and thought. Professor Goudge's review[1] of *Philosophy for the Future: The Quest of Modern Materialism* is a case in point; and I would not request THE PHILOSOPHICAL REVIEW for space for some remarks on the issues raised had it not been that he asks just the questions which, I am sure, other philosophers are asking. My replies are my own, and I give them for what they are worth. But I believe that Professors Farber and McGill would comment along much the same lines.

What we wished to do was to push naturalism a little deeper into the basic nature of things and to join it explicitly with the centuries-old tradition of materialism, all the while making use of the results of science and the clarifications made possible by advances in philosophical analysis. Such an enterprise I still regard as very desirable, though I am aware of the shortcomings of the book and do not feel that Professor Goudge dealt hardly with it.

Let it be understood, then, that what I have to say is of the nature of a discussion of philosophical principles and not a rejoinder. I wish to indicate the issues as I see them in epistemology and ontology. This is not the first time they have been raised in this journal. As I recall, there have been at least two previous discussions of materialism, the first begun by the late Professor De Witt Parker, directed at my general set of epistemological and ontological principles, and commented on by Professor Ogden, the second engaged in by Professors Donald Williams and Max Black and largely concerned with the divergence between positivism and realism.

Epistemology and ontology are, in my opinion, copartners. That is, there is an interplay between them. In all my conversations with Parker the ultimate question was that raised by Berkeley: Do we have a positive conception of matter and material things? If not, argued Parker, we have a right to base our ontological thought on the *sample of being* given in personal experience. The controversy between posi-

[1] *Philos. Rev., LIX* (January, 1950), 107–112.

tivism and realism is somewhat different in its emphasis, for the positivist rests his case on the primacy of sensory data. Of course, it is all very complicated and technical as regards the meaning of meaning but, in the main, the question of transcendence of reference is set aside and stress is placed upon the logic of confirmation. The ontological reach and grasp of human knowing is ignored or belittled. Naturally, I am very much interested in the points raised recently by Professor Feigl in his qualified return to Schlick's earlier realistic position. I likewise note that Professor Nagel is not altogether happy about Dewey's treatment of neutrons and electrons.

In my own contribution to the book on materialism I pointed out that Berkeley's *immaterialism* was regarded by him as an alternative to the tendency to materialism which had manifestd itself in connection with the work of Newton and Locke. In fact, the term *materialism* dates from that period and was later projected back to cover Democritus and the Epicureans. It is not surprising, then, that the weakening of epistemological idealism should revive the issue in academic philosophy. And this quite independent of the Marxist current in its basic modification of Hegelianism. As I pointed out in an article in *Philosophy and Phenomenological Research* several years ago, dialectical materialism is largely a *mélange* of Hegelianism of the left and Lockianism. I still think that Carritt sized up the situation quite fairly from the standpoint of technical philosophy.

But I am not concerned here with the question of the principles of *dialectical materialism,* interesting as those are, but with materialism in its more generic form. Now it is obvious that the only type of materialism which has a future in philosophy is a technically sophisticated one, aware of traditional inadequacies and having competence in epistemology, ontology, and theory of value. Nothing short of this will avail. My own interest in ontological materialism arose in connection with my early advocacy of critical realism. That was supplemented by a study of the implications of evolution and by what I called the double-knowledge approach to the mind-body problem. Even before I wrote my *Evolutionary Naturalism* (1921), I had been chided for asserting that mind must be considered a physical category at this evolutionary level, involving, as it does, operations and dispositional properties. This, I take it, is essentially the thesis of recent behaviorism.

It followed from all this that an adequate ontological materialism could not be of a thin, pictorial type but had to have insight into the reach and grasp of knowledge, an analysis of categories, such as those of whole and part, substance and dispositional properties, and a grap-

pling with the problem of novelty. In short, ontological materialism, as I have always understood it, is not an a priori affair or a Procrustean bed on which human life is stretched but, rather, a metaphysics going hand in hand with all the sciences and with reflections on the human situation. Now such a project was relatively novel, since academic philosophy had for fairly obvious, cultural motives plugged for idealism or positivism. Idealism has, on the whole, weakened; and I think there are many signs that positivism has run up against unforeseen problems in both logic and science.

With this as an introduction I shall now turn to the points raised by Professor Goudge. His outline of the position advocated is reasonably accurate; and so I shall devote my attention to principles as I see them.

The first question concerns the reach and grasp of perception at the elementary level of human knowing. Technical observation in the service of scientific method is a supplementary problem.

In what sense are *material things* directly perceived? Obviously, matter, as designating ultramicroscopic *units* as inferred in science, is not perceived in the same sense as macroscopic things are. But, unless such units were, in an understandable sense, *constituents* of macroscopic things, they could not be regarded as ontologically one with them. Now that is what science means when it speaks of trillions of molecules in one gram of water. The thing to do, therefore, is first of all to have a clear idea of what macroscopic perceiving is and then to analyze both whole-part inference and special conditions of perceiving, as in the use of flashes on a calcium screen or the reading of spectrum lines.

I do not think the latter problems are too difficult, once the epistemologist has cleared up the frame and meanings of macroscopic perception. The thesis of the critical realist is that perceiving is a more complicated affair than sensing and that it involves designations and descriptions with the percipient organism as the basis of referential and descriptive operations. The outlook rests upon funded meanings developed from infancy; and so we have a frame which passes into language. It was the great mistake of empirical philosophy to seek to substitute for this frame that of introspective psychology of the sensationalistic type with its neglect of meanings and language. Objective idealism was somewhat better advised but its presuppositions turned it away from closer analysis of actual perception.

To make a long story short, perceiving is referential and descriptive; and the things around are regarded as coreal with the concrete, organic percipient. There is a measure of reflexive percipience involved, which

may be deepened with reflection. Many of our categories rest upon this interplay. It is very generally admitted, for instance, that Hume did not do justice to self-knoweldge in his analysis of the *base* of the meaning of causal connection. Stout, Parker, Nelson, and many others, including myself, have called attention to this source. But it needed supplementation in the refusal to reduce perception to sensing. Language and meanings have the frame of things moving and behaving and executive. Perceiving is designating, taking an objective attitude towards, describing. It is referentially direct and denotative. And we believe that, in some sense which requires exploration, things *appear* in our experience and are *known* in terms of categories and descriptions. It is an affair of clarification and testing.

It is in this sense that the materialist holds that we perceive material things and that the entities and energy-patterns of theory are constituents of them. Such is what I call the *reach* of knowledge. And modern materialism is not agnostic. It stresses detailed facts and emphasizes laws of behavior. In all this, I take it, it is in harmony with science. Science easily gets confused when philosophical issues are raised; and what philosophy should try to do is to clarify its frame. This is what realism seeks to do. Certainly, if I were not a realist I could not be a materialist.

Let us now turn to two decisive questions: (1) Have we a positive conception of matter? (2) Should the term matter in philosophy be limited to its use by physicists?

Very naturally, a Berkeleian argues on his premises that we have no positive conception of matter. But it is the very principle of critical realism that, even at the perceptual level — let alone the level of scientific method — we are concernd with designatable things about which we are asserting facts of size, composition, executive capacities, etc. It is not a question of trying to get an intuition of them, though it is true that we are apt to be misled by the operating presence of sensory factors into a sort of naive realism. It is, then, *as though* what we were concerned with were open to inspection. But, once we understand better the mechanism of human knowing, we realize that knowing is an achievement *whose grasp and disclosures can be clarified only by its own claims*. Our positive conception of matter is, accordingly, structural and dynamic, categorial, factual, and nomic. The primary context is that of material things and their interactions and thence we pass to the microscopic with science. But, in so doing, we never break completely with the demands of the primary context. It is to the language of both common sense and of science that we should go for our

positive concept of the material world and not to the introspection of sensations and images. The latter is a misleading frame.

To answer the second question, I see no reason why philosophy should not raise just the points Professor Goudge does with respect to pattern. I had supposed that one of the differences between classical physics and recent physics was the stress upon field, situation, and relations in the latter and its neglect in the former. Units are now thought of in their relations except when abstraction is made for certain purposes. But what is meant by asking whether patterns are material in the same sense as unit particles? Surely, what is out there for the physicist is the units *in* their dynamic, or energy, *connections.* The methods and theories of physics are used by chemists to study the energy level and changes of such connections. But, surely, such connections are material and not immaterial in any ontological sense. The point Professor Goudge rightly raises is one with which physics is concerned as well as philosophy. It is the whole question of context and organization. I quite agree that an adequate terminology should be worked out. Even logicians get confused as to the nature of the distinction between form and content.

Let us turn next to the category of substance. I was a little surprised to learn that I was opposed to it since I have long been one of its defenders. But I have no right to assume that Professor Goudge was familiar with my position. Suffice it to say that, in stressing time, I was merely rejecting eleatic traditions and the old notion of an inert substratum. The recent development stresses *continuants* which have dispositional properties that can be set in operation by some additional causal factor, an occasion. I cannot see that the acceptance of *causal process* under these conditions implies phenomenalism or the sort of outlook which is represented by Professor Dennes. The category of *thing,* when analyzed, involves that of dispositional properties. That, I take it, is one of Professor Nelson's contentions. Now things are not mysterious *substrata* but designata which can be handled and known. I have often contrasted realistic empiricism with phenomenalistic empiricism. Those who analyze perception as I do are realistic empiricists; those who stress sensing are phenomenalistic empiricists. I take categories like substance and causality very seriously. But they are not a priori.

Are material things cases of effete minds? I am looking forward to Professor Goudge's forthcoming book on Peirce to clear up for me some crucial points in the latter's epistemology and ontology. I am very skeptical of panpsychism. But I do not think that consciousness is

alien to the physical world at the organic level. Yes, I regard feeling and thinking, as we experience them, as intrinsic features of cerebral operations, as what I call *natural isolates*. Their ontological context can be *known about* as introspection is used hand in hand with neurology and surgery. I have often talked over this question with Herrick and it is to the complexity of the problem that he refers in his essay. What we are seeking to formulate is an identity theory which does justice to all the distinctions involved.

Professor Goudge wants to know what is organized. Elementary particles, an underlying substratum, processes, or an objective reality? My own answer is that of science, namely, elementary particles are organized into atoms, these into molecules, these into cells, etc. There is the external medium and the internal medium and phase differentiations. I, certainly, do not think of *underlying substrata*, whatever that may mean, but of different levels of continuants with novel dispositional properties. I do not see that the term *process* is limited to presentations. In fact, the older use of the term was causal process. And this *is* objective reality.

Being somewhat of a pluralist, I do not apply the term "level" to the universe at large. It is, for me, just another term for the common distinctions between the inorganic, the organic, and the minded organic with the *gradients* in and between them. The essential question is the *direction of novelty* and its mode of genesis. Peirce has a sort of Schellingesque romantic notion of degeneration, which is the reverse. I wish to naturalize mind, partly by getting a clearer notion of what we should mean by the term. And I see no facts which make mind ontologically prior. Quite the opposite. Our cultural climate is different from that of Peirce and James.

Finally, I quite agree with Professor Goudge that scientific method is the heart of science. Yet I cannot grant that scientific knowledge about the world and the world view it indicates are somehow secondary and adventitious. And, in much the same fashion, I regard analysis as the heart of philosophy; and the epistemologies and ontologies which are offered as tentative achievements. The intellectual virtues are objectivity and truth-seeking. The co-operation of science and philosophy should be a free one and in no sense dictated. Certainly, I believe in no official philosophy and in no official science. I call myself a realistic liberal. Cultural outlooks do *affect* the positions taken in philosophy, though they may not determine them. One pays his price, even in America, if he is moved to present an unpopular position.

ROY WOOD SELLARS

University of Michigan

REVIEWS OF BOOKS

THE THOUGHT OF C. S. PEIRCE. By THOMAS A. GOUDGE. Toronto, University of Toronto Press, 1950. Pp. xiv, 360. $5.50.

This book is at once a survey of Peirce's thought and an attempt to establish, in the course of that survey, the following hypothesis: "Peirce's temperament...harbored a conflict which exhibits itself philosophically in the espousal of two incompatible sets of premisses for his thought. One of these is his naturalism; the other is his transcendentalism" (p. 5). The body of the book is, accordingly, divided into two sections: "Peirce's Naturalism" (238 pages) and "Peirce's Transcendentalism" (75 pages). A concluding chapter, "Peirce's Career," sketches the factors of "background, training, personal associations, and mental development" which Professor Goudge believes account for the radically opposite tendencies in his thinking.

The exposition of Peirce's views is, on the level of detail, quite reliable. Moreover, many of the notices of discrepancies between statements, of shifts in the meanings of terms, and of other matters of that order are interesting and useful. Yet the larger picture of Peirce — the picture of Peirce bifurcated — is, in my opinion, a somewhat distorted one. This is not to say that there are no major inconsistencies in Peirce's thought. But these inconsistencies are not adequately revealed through the use of the naturalist-transcendentalist dichotomy as Goudge defines and applies it. This apparatus has also, I think, made it impossible sometimes for Goudge to make clear to his readers what there is of integration in Peirce's thought.

By naturalism Goudge means the following set of principles: scientific method is the only means of obtaining knowledge; theory and practice are inseparable; "conceptual precision" is important in philosophy; Platonic realism is not plausible; "man is a product of the natural world, with which he is continuous, and his philosophical account of that world requires the use of non-subjective or non-personal categories"; "*a priori* modes of thought about matters of fact are illegitimate"; any systematic explanation of "the nature of the world" is suspect; and "the conclusions of philosophy must be broadly compatible with the ideas of common sense" (p. 6). Transcendentalism consists virtually of the contradictories of the above principles, except that the following are special cases: "feeling, sentiment, or instinct" are primary sources of knowledge; "metaphysical construction is a more significant activity than logical analysis"; and "since man's

inner life provides him with the truest insights into the nature of the universe, he may properly interpret the latter in terms of highly personal or anthropomorphic categories" (p. 6).

What the crucial terms of these descriptions mean is in most cases not fully explained, and this fact itself is in part responsible for the deficiencies of Goudge's interpretation. "Scientific method" is a good example. It involves, of course, among other things, that our beliefs should be "validated observationally." But it would be good to know more exactly how this criterion was used to distinguish between that part of Peirce's metaphysics that is admitted to rank as naturalist, and the other part which, depending only on a priori and anthropomorphic modes of thought, is transcendentalist. We are not told, either, what entitles Goudge to group the premises of each set together, as in some sense belonging together, and as resulting from a temperamental disposition. The significance of associating the term naturalism with premises which (Goudge believes) are scientifically warranted and of calling transcendentalist "all the beliefs which he [Peirce] affirms on grounds other than those of scientific method" (p. 251) is also obscure, though it is evident that some important philosophical decisions are behind it.

There seems, at any rate, to be something about these categories which makes them unsuitable for conveying several of Peirce's central and most characteristic ideas. What happens, in more than one case, can fairly be described as a forcing of the naturalist-transcendentalist division into a concept unable to survive that strain. The following may serve as an example: Goudge claims to show that Peirce has two conflicting doctrines on the character of "experience" as the source of knowledge. On the one hand, it is alleged (p. 266), Peirce sometimes regarded experience as "wholly non-cognitive." Yet he is supposed to have held, on other occasions, that "experience is the result of the functioning of the mind" (p. 267). The former view is, of course, naturalist, the latter transcendentalist. Since naturalism and transcendentalism are incompatible, this is as far as Goudge needs to go in the matter. Now these two interpretations of experience are so obviously incompatible that it seems likely that if Peirce ever adhered to them both it was, at least, not on the same occasions. Goudge does, indeed, say that Peirce maintained the two positions in different "contexts." The fact is, however, that Goudge's illustrations of these mutually exclusive doctrines are, as often as not, taken from the same contexts and, in three cases, from identical paragraphs (2.141, 5.539, and 6.492) of the *Collected Papers*. This requires us to suppose either that Peirce was remarkably inattentive to what he was writing or that (sometimes, at least) he thought he was saying something different from either of the two propositions Goudge attributes to him. In sup-

port of the latter alternative here is one of Peirce's statements on the topic: "*Experience* means nothing but just that of a cognitive nature which the history of our lives has forced upon us" (5.539). Certain features of phenomena are, I think Peirce is saying, forced upon us in the sense that they plainly are what they are regardless of our wishes. It is this element of compulsiveness which makes the difference between fact and fancy. But *what* is thus thrust upon us is in some respects meaningful ("of a cognitive nature"). Thus experience is neither "wholly non-cognitive" nor simply a "mental product." It is to this interpretation of experience that Peirce is committed in at least one context, that is, the later theory of pragmatism. And in that context, at least, it is just the two doctrines described by Goudge which Peirce must — and knows he must — avoid. He cannot allow that our encounter with the external world in perception is nothing more than a blind clash of ego with nonego. Such a transaction would not be one between knower and known, but one between sheer will and sheer resistance to will. In this there would be found no datum by reference to which any judgment at all could be either confirmed or disconfirmed. For a judgment always refers partly to some *sort* of thing. That a thing is of a certain sort is a matter, not of any individual reaction of the thing in a particular situation, but of a general disposition of the thing to a certain sort of behavior. Such a disposition is, on Peirce's theory, precisely an intelligible character of the thing. It is a rule or law of the thing's behavior. If experience is ever relevant to any of our judgments, then, it must in part be experience of intelligible aspects of things.

No more is Peirce willing to admit, in his writings on pragmatism, that the thinker simply produces what he experiences. Peirce does, of course, hold that all thought is carried on by the use of signs and that the use of signs is a type of activity or of disposition to action on the part of a thinker. This is not, however, to say that the thinker produces what he experiences. And Peirce is careful to disavow the doctrine that only the fully intelligible is real.

Thirdness, or generality, is another key concept of Peirce's which does not, as I see it, come through to the reader of this volume. When the idea in its naturalist "moment" is being set forth, it is so watered down that it does not correspond to what Peirce had in mind during the period when he was making the greatest use of the notion. All nonnaturalist connotations (including some which I think are of first importance to Peirce), on the other hand, are given short shrift simply because they are transcendentalist. For example, Peirce's statement that "general principles are really operative in nature" is shrugged off as anthropomorphic; and Peirce's reasons for affirming the reality of "generals" never get across successfully. Goudge's distrust of anthro-

pomorphic ideas prevents him from taking seriously Peirce's attempts to explain Thirdness by the use of the concept of purpose. It is just this mode of explanation, I believe, that most readily leads to a glimpse of what Peirce has in mind. Suppose I intend to make an apple pie. What I intend is (or at least may be) simply to make an apple pie — a sort of thing — rather than some particular thing, resulting from a particular set of acts relative to a particular batch of ingredients. If my intention is thus general, then the reality of my intention consists, not merely in its being the first event in a wholly mechanically determined series of events — for this would produce one particular thing and not any other — but in its determining that future events will be of a certain *sort*. Now Peirce maintains that if it is ever true to assert something of a general nature — something, that is, about the sort of behavior of some sort of thing — then there must be a mode of determination of events which has in common with purpose that it determines not precisely what will happen but what sort of thing will happen. This theory may or may not be true. But it at least deserves fuller statement and more thorough consideration than Goudge has been able to give it. Here again the fault seems to lie with Goudge's commitment to a system of classification which excludes altogether the sort of thinking Peirce sometimes does. There are for Goudge only two conceivable points of view on the question of the reality of universals. Unfortunately, neither happens to coincide with the position which Peirce took (or at least tried to take) in some of his best-developed arguments.

The most disappointing feature of the book is the treatment of pragmaticism itself. There are six pages on "the pragmatic interpretation of signs," two pages on the "subservience" of the pragmatic maxim "to the *summum bonum*," and a few references scattered elsewhere. Of the systematic connections between the ideas of pragmaticism, Thirdness, habit, purpose, and the perceptual judgment — connections which are sketched laboriously if incompletely in the later papers on pragmaticism — little is said.

These objections made — and they reflect, of course, but another interpretation of the thought of Peirce — it remains to be said that the merits of the book are considerable. The documentation is accurate, the coverage comprehensive. Much of the volume has to do with topics which can be and are dealt with independently of the naturalist-transcendentalist hypothesis. At the least estimate, this is a valuable handbook to the study of Peirce's writings.

W. E. SCHLARETZKI

Cornell University

ROYCE'S SOCIAL INFINITE. The Community of Interpretation. By JOHN E. SMITH. New York, The Liberal Arts Press, 1950. Pp. xiii, 176. $2.75.

Josiah Royce was a metaphysician who could change his mind. During the last fifteen years of his life, the basic ideas of his system underwent a development which is often overlooked or forgotten. The course of this development is well charted in Professor Smith's exposition of the central doctrines of Royce's concluding major work, *The Problem of Christianity*. The theory of interpretation and community elaborated in Volume Two of that work shows what can happen when a Hegelian takes seriously the results of mathematical logic.

Charles Peirce was the man chiefly responsible for the shift in Royce's opinions. Mr. Smith maintains that five leading ideas put forward by Peirce in his papers of 1867 exerted an influence on Royce. They are: (1) the contention that truth and reality must be defined in terms of an unlimited community of inquirers; (2) the theory of signs; (3) the view that all cognition involves comparison; (4) the denial of intuitive or immediate knowledge; and (5) the insistence that self-knowledge is discursive, requiring relations to other selves and the interpretation of signs. Royce apparently did not encounter these ideas until long after he had made up his mind that the Absolute is not a mere ideal, but an actuality. The result was that his conception of the Absolute altered decisively after 1900. At the same time, Peirce's ideas were given a metaphysical inflation and combined with the Roycean "philosophy of loyalty."

The Absolute was first envisaged by Royce as an all-embracing consciousness or self who cognizes the whole of reality "in one moment" and harmonizes all conflicts among the multitude of finite wills. Later, he abandoned this position in favor of the conception of the Absolute as a well-ordered, infinite system or community of interpretation. The principle specifying the type of order possessed by this actual infinite determines "all at once" the members belonging to it. Royce devoted more and more attention to the members of the system, so that his thought became increasingly pluralistic towards the end. Yet his final view, to quote Mr. Smith, was that "a community appears as *both* one and many; the members are real as individuals and yet are linked together in a unity not identical with any one of them or with any numerical collection" (p. 64).

By a "community" Royce seems to have meant any group of selves having an ideal common past and an anticipated future. Such a group is of necessity a developing entity, "a product of the time-process." Among the conditions which determine its development, are the following: (a) The community must have a goal which it seeks to reach through the appropriate deeds of its members. (b) The members must

interpret the community to each other. (c) The past history of the community must contain some events which appear identical to all. (d) The members must be motivated by a genuine love of the community as the supreme object of their loyalty. Mr. Smith points out that the model for this analysis was Peirce's doctrine of the self. For Royce simply extended to the community Peirce's view that the self is not a datum but a process of interpretation based on memory and expectation. Hence, the central constituent of the community is held to be the complex, interpretative activity which, being endless, forms a "social infinite."

Mr. Smith deals at some length with Royce's notion of interpretation, tracing its roots in the work of De Morgan and Peirce. Although the matter is not wholly clear, it appears that Royce regarded interpretation as a special type of cognition, different from both perception and conception. The best example of it is the phenomenon of communication, where someone interprets something to someone else. Such a process is irreducibly triadic. For in addition to the three components mentioned, it involves the temporal distinctions of past, present, and future. Signs now past are interpreted in the present and addressed to a future interpreter. When generalized in the most sweeping manner, all this becomes a metaphysics which Mr. Smith summarizes thus:

> The whole of reality is a vast system in which the present interprets the past to the future. The system is infinite in character precisely because all interpretations are themselves signs which will stand in need of further interpretation in the future. . . . The completion of such a process is real for the ideal interpreter since he is the one, so to speak, who possesses the interpretation not itself in need of further interpretation — that is, the absolute truth. Hence the infinite is actual as the infinity of minds in community, as the interpreter or spirit, and as final or complete interpretation which is absolute truth (p. 107).

In the last three chapters of the book, the author indicates how this metaphysical doctrine was employed to solve "the problem of Christianity."

Mr. Smith is certainly a sympathetic expositor of the Roycean philosophy. Indeed, he sometimes bends over backward to avoid making unfavorable criticisms of it. As a result, certain difficulties are treated far too lightly. For instance, the ambiguity in Royce's use of the term "interpretation," which designates both a *process* of cognition and the *product* of that process, is noted (p. 87) but not adequately reckoned with elsewhere. Similarly, the well-known difficulties in his conception of the self are given rather scanty attention. Mr. Smith seems on the whole to overrate the cogency of Royce's thinking. There can be little doubt that when he became acquainted with mathematical logic Royce immediately recognized its value as an instrument for increasing the precision and subtlety of philosophical reflection. But he did not suc-

ceed in tightening up his own habits of thinking by means of it, or in overcoming the vagueness upon which Hegelianism thrives. Nevertheless, one must admire the open-mindedness with which he approached the new logic, and allowed it to influence his opinions on the great themes which occupied him. Mr. Smith has performed a useful service in tracing this influence through the labyrinth of Royce's later system.

THOMAS A. GOUDGE

University of Toronto

A LEXICON OF ST. THOMAS AQUINAS, BASED ON THE SUMMA THEOLOGICA *AND SELECTED PASSAGES OF HIS OTHER WORKS.* By ROY J. DEFERRARI and SISTER M. INVIOLATA BARRY, with the technical collaboration of IGNATIUS MCGUINESS. Washington, Catholic University Press. Fascicle I, A–C (1948), pp. i–x, 1–262; fascicle II, D–H (1949), pp. 263–495. $12.50 per fascicle.

The language of medieval philosophers and particularly the technical vocabulary and syntax of Thomas Aquinas have had a profound effect, not only on the linguistic devices available for distinctions and analogies in the development of philosophy since the Middle Ages, but also on the problems and aspects of experience which have been the focus of philosophic attention during the modern period. Cicero and Lucretius complained that the poverty of the Latin language prevented them from expressing the niceties and precisions of Greek philosophy and from developing their own doctrines. They both made important additions to the technical vocabulary of philosophy in Latin as well as important changes in syntactic constructions. That process of alteration continued until, in the thirteenth century, a philosophic Latin had been constructed which reproduced in every detail the vocabulary and structure of Greek. When Thomas Aquinas worked, a Latin word was available for every Greek philosophic term (indeed, sometimes several Latin terms had been provided to translate one Greek term, and sometimes one Latin term was used to express the meanings of several Greek terms), and a good part of Aquinas' study of Aristotle was based on the translations of William of Moerbeke which reproduce the Greek, word for word and in the same order, without omitting even particles which have no precise equivalents in Latin. To find the word by which any word is translated, one has only to find, by counting, the word which occupies the same place in the Latin sentence as the original word occupied in the Greek. In addition to the distinctions thus made available in Latin, the philosophers of the thirteenth and fourteenth century developed a system of technical terms to arrange and order those distinctions. Moreover, the terms invented to express

basic linguistic and semantic distinctions assumed greater and greater importance during the period. The Renaissance revolt against scholastic distinctions and medieval Latin and the return to the language of Cicero were efforts at once to reduce the number of technical distinctions and to find some substitute for the linguistic mode of analysis. The aspiration to elegance and the quest for precision has continued to pull philosophers in opposite directions since the seventeenth century, and distinctions deeply buried in the forgotten meanings of modern terms, derived from Latin translations of Greek distinctions, continue to come to notice with much the same effect as empirical discoveries concerning the nature of things. This tendency is of particular interest in present-day philosophy since we have become aware of linguistic dimensions of philosophy in a fashion which requires distinctions and analyses reminiscent of the fourteenth century.

Thomas Aquinas occupied a crucial place in the transition from ancient to modern distinctions. In the Preface to the new *Lexicon of St. Thomas Aquinas,* Father Ignatius Smith argues that Aquinas succeeded, where the Averroists failed, in discovering the "Intention of Aristotle" because of "his lexicological familiarity with the literal meanings and the connotations of words in most of Aristotle's works." The *Lexicon* is designed to provide a like instrumentality for the discovery of the "Intention of Thomas." Unlike previous and partial lexicons and dictionaries, such as the *Thomas-Lexicon* of Ludwig Schütz (2d ed., 1895), the present compilation is not limited to words of philosophic importance, but is concerned with Aquinas' language generally: every word that occurs in the *Summa Theologica* is treated. Supplementary use is made of Aquinas' other writings, and it is planned to extend the compilation at a later stage until a Lexicon is provided for all the works of Aquinas. Under each entry the different English words equivalent to the Latin are listed in an enumeration of the different meanings, and illustrations of each meaning are provided from the works of Aquinas under the same numerical heads as the definitions.

This neutral and purely lexicographical approach to the problem of Aquinas' language is fundamentally an advantage even to the scholar who is interested in the philosophic vocabulary and the basic distinctions it expressed. In many cases the classifications and distinctions of the Aristotelian philosophy might have been introduced or might have been given a more prominent place in the discussion of the key terms of that philosophy instead of being dismembered and distributed in an alphabetical arrangement of the adjectives by which terms are modified. But there are also obvious dangers in intruding the lexicographer's conception of the basic distinctions into systematic schemata foisted on Aquinas. In its present form the *Lexicon* makes available

on a neutral linguistic schema the materials from which scholars may re-examine and reconstruct the classifications which are superimposed on each other in Aquinas' philosophic writings with a rich profusion that would resist any single or simple classificatory scheme. The *Lexicon* is a mine of material which will be useful to scholars working in many philosophical fields other than the history of medieval philosophy. The enumeration of some of its weaknesses, even on its linguistic presuppositions, is therefore part of the proper praise of the published results of the enormous labors of the editors.

Most of the basic difficulties in the treatment of Aquinas' philosophic vocabulary arise from insufficient attention to his continuing effort to understand, render, and adapt Greek distinctions and definitions. His writings, and particularly his commentaries on Aristotle, abound with the discussion not only of Aristotelian distinctions but even of the meanings of Greek words. Aquinas' own philosophy is intelligible only when it is set against the background of Aristotle's system, and Aquinas' contribution to philosophy and to philosophical vocabulary takes on importance when the likenesses and differences of his usages and those of Aristotle are stated as unambiguously as possible. The *Lexicon* contains the discussion of the Greek sources in some of the articles, and occasionally the discussion is fairly complete. The failure to give any indication of Greek sources, or even to inquire whether or not there are Greek sources, is therefore all the more surprising in the entries in which they are omitted. In most such cases the information is available in the statement of Aquinas himself.

On the simplest level this failure to trace the sources of Aquinas' Aristotelian vocabulary results in a lack of connection and cross reference among the terms which could be supplied without going to the Greek. Thus, there is no cross reference between *alteratio* (p. 52) and *augmentatio* (p. 99) nor any explicit statement that they are two of the three kinds of motion. Aquinas' use of Aristotle's definition of *generation* as a kind of change (p. 457) is repeated without reference to the relation between change and motion (*mutatio* and *motus*) or indication that the three kinds of motion and generation constitute the four kinds of change. Similarly, the synonyms given for *argumentum* in its primary sense are *argumentatio* and *locus,* which are not strictly synonyms; but *syllogismus,* which is synonymous for Aquinas, is not mentioned, nor does it appear in the course of the article (although it does appear in the definition of *argumentativus*). This is the more surprising since Aquinas is quite explicit in equating the two (cf. *Commentary on the Posterior Analytics,* lib. 1, lectio 1: "...unde si scientia non posset acquiri per *syllogismum vel argumentum,* nulla esset necessitas demonstrativi syllogismi," and "Et hoc est fieri in nobis scientiam per *syllogismum aut argumentum* quodcumque"). The classi-

fication of "arguments" employed in the article includes the familiar differentiation according to the quality of the major premise of the syllogism and runs therefore through "probable," "rhetorical," and "sophistic" arguments, but no reference is made to either "dialectical" or to "demonstrative" or "scientific" arguments. The linguistic reason is not far to find, since Aquinas tended to use *syllogismus* rather than *argumentum* with those adjectives, yet it is no excuse for the total omission of reference to those modes of argumentation since syllogism and argument are interchangeable. Moreover, the authors define *ars demonstrationis seu ars demonstrativa* as "the art of argumentation" (p. 86), and they quote the statement of Aquinas that "demonstration is a species of argumentation" (p. 284).

A more complex and confusing level of difficulty arises in the treatment of terms which are used to translate several Greek terms. Those terms are usually the locus of philosophic problems, but the linguistic ancestry of the terms in which the problems are discussed could be examined without commitment on the problem or distortion of its statement, and frequently the disentanglement of the strands of definition and distinction assists in the clarification of the issues. Thus, the article on "abstraction" not only does not undertake to interrelate Aquinas' various classifications of kinds of abstraction but it gives no indication of the varied sources of these distinctions in Greek. One Greek source is quoted (in the article on the verb *abstraho*) : *chorízo,* which means literally to separate in space and which Aristotle employs in the *Metaphysics* when he discusses the Platonic effort to "separate" ideas and numbers from phenomena. But some of the distinctions treated are derived from passages in which Aristotle uses *analúo,* which means literally to break up or resolve into its elements and which Aristotle uses when he analyzes the syllogism into its parts, and some are derived from passages in which Aristotle uses *aphairéo,* which means literally "to take away or set aside" and which Aristotle uses in his discussion of the relation of universals and particulars. Similarly, in the course of the article on *actus,* reference is made in a quotation from Aquinas to *entelécheia* (p. 16) but most of the distinctions have to do with what in Greek would have been *enérgeia* or *praxis* (which are mentioned on p. 18 without comment on the fashion in which they are collapsed in *actus*). In the article on *entelécheia* (p. 366) a quotation from Aquinas connects *entelécheia* with *forma* as well as *actus,* but the article on *forma* affords no further elucidation of that connection.

The difficulties in tracing the significance and the connotations of terms is even greater when two or more Latin terms are used to translate a single Greek word and are then related to or distinguished from each other. The problems which are involved would be clearer if the

sources of the terms in question were traced. Thus, in the article on *contemplatio* (pp. 226–227), Aquinas is quoted (*Sentences,* lib. iii, 35, 1, 2, 3) on the difference between "contemplation" and "speculation," the former having as object God, the latter the results of divine action in created things. The article suggests no relation between either "contemplation" or "speculation" and "theory." Yet both are used as translations of the Greek word *theoria.* When Aristotle differentiates three lives (*Nicomachean Ethics,* i. 5), the life of pleasures, the political life, and the theoretical *(theoretikós)* life, the term used in Aquinas' discussion is *contemplativa* (cf. *Commentary on the Nicomachean Ethics,* lib. i, lectio 5: "...scilicet voluptuosam quae dicta est nunc, civilem et *contemplativam,*" and "Vita autem *contemplativa,* quae constituit finem in bono rationis *speculativae,* vel in *contemplatione* veritatis"). Aquinas himself indicates the derivation of *speculativa* by using the transliteration *theorica* (cf. *Commentary on the Metaphysics,* lib. vi, lectio 1: "Si igitur omnis scientia est aut activa, aut factiva, aut theorica, sequitur quod naturalis scientia theorica est. Ita tamen 'est *theorica*' id est *speculativa,* circa determinatum genus entis, quod scilicet est possibile moveri"; cf. *ibid.,* lib. ii, lectio 1: "...'theorica', id est consideratio vel *speculatio* de veritate..."). This common derivation of "contemplation" and "speculation" from the discussion of "theory" is not a confusion on the part of Aquinas but rather a refinement which he introduces into the earlier doctrine. The life of the wise man is speculative, and the contemplation of truth is wholly inward (cf. *Commentary on the Nicomachean Ethics,* lib. x, lectio 10: "Sed non ita de sapiente *speculativo,* qui potest speculari veritatem, etiam si solus secundum seipsum existat. Quia *contemplatio* veritatis est operatio penitus intrinseca ad exterius non procedens"). The distinction between *contemplatio* and *speculatio* in the *Commentary on the Sentences* is supported by quotation of the same chapter of the *Ethics* as is used as source of this statement of the relation between them.

The vocabulary which Aquinas employed to formulate the distinctions pertinent to the use of reason in practical problems presents similar problems to those encountered in scientific and theoretic problems. The articles on *consilium* and related terms (*consiliatio, consiliativus, consiliator, consilior,* pp. 217–218) contain references in which Aquinas uses the word *eubulia* and indicates that *consilium* is the translation of *boulé.* The quotations in the article on *eubulia* (p. 380) gives similar indications although there is no reference to the article on *consilium.* By careful reading of the citations the reader will gather that *consilium* has the same relation to practical decisions that judging has to scientific and that *consilium* is related to *electio* as a syllogism to its conclusion. Yet none of the passages is quoted in which Aquinas

states succinctly that, just as speculative reason has two operations, inquiry in order to discover and judgment of what is discovered, so practical reason has two operations, inquiry or *consilium* which is the act of good deliberation (or *eubulia*) and judgment concerning the results of deliberation which is the act of understanding (or *synesis*) (cf. *Com. Eth.*, lib. vi, lectio 9: "...in speculativis, in quibus non est actio, est solum duplex opus rationis: scilicet invenire inquirendo, et de inventis judicare. Et haec quidem duo opera sunt rationis practicae, cujus inquisitio est consilium, quod pertinet ad eubuliam, judicium autem de consiliatis pertinet ad synesim"; cf. *ibid.*, lib. vi., lectio 8 and lib. iii, lectio 8). Once the Greek sources are uncovered the reader has a key to the cross references to follow. The article on *eubulia* does refer to the article on *synesis* (which is not yet published). The article on *electio* likewise discusses some of the Greek texts concerning *proairesis*, including Aristotle's definition of *proairesis* (or choice) in terms of desire in relation to deliberation *(boulé)* and to reason. Aquinas' own statement might have been added for confirmation (*Commentary on the Metaphysics*, lib. vi., lectio 1: "Nam principium activarum scientiarum est in agente, non in ipsis actionibus, sive moribus. Hoc autem principium 'est *prohaeresis*', idest *electio*"). The reader has no explicit guidance in these interrelations even on their purely linguistic side. Thus it might occur to him that *boulé* which is translated *consilium* might also be translated *deliberatio* but he can consult the article on *deliberatio* without light on this question, except to encounter the phrase "cum inquisitiva deliberatione consilii" (p. 282). There is no doubt that *consilium* and *deliberatio* are translations of the same Greek term: thus, when Aristotle restricts (*De Anima* iii. 11. 434a7) deliberative *(bouleutiké)* imagination to animals possessed of reason, Thomas expresses the distinction (*Commentary on the De Anima*, lib. iii, lectio 16) by restricting that variety of *phantasia sensibilis* which is *per deliberationem* to rational animals, "quia considerare utrum hoc sit agendum aut hoc, quod est *deliberare*, opus est rationis." If the reader follows a similar inquiry with respect to the relation of *appetitus* and *desiderium* he will find in the articles on those terms the indication that both are employed as translations of Aristotle's *orexis* (pp. 73 and 293).

Most of these puzzles and difficulties would be removed by a clearer treatment of the relation of Aquinas' terminology to that of Aristotle. Some of the interrelations that have been traced to illustrate the need for such information go beyond the proper scope of lexicographical problems, and the facility with which those questions can at least be isolated is indication of the achievement of the *Lexicon*. The statement of criticisms requires more space than the description of achievements. The criticisms which have been set forth here have been made in the

hope that they may be helpful in the preparation and publication of the remaining fascicles of the *Lexicon*, but even without alteration of plan, the work is a massive contribution to the scholarly instruments of the student of the developments of intellectual language and of the philosophy of the Middle Ages.

RICHARD MCKEON

University of Chicago

MAN'S FREEDOM. By PAUL WEISS. New Haven, Yale University Press, 1950. Pp. 324. $5.00.

Professor Weiss has written a highly polemical book without the usual trappings of polemics. It is entirely devoid of footnotes and the index shows references to only eight living writers, none of whose views are discussed explicitly and in detail. Authors with a place in the history of philosophy are somewhat more frequently mentioned but the reference in each case is almost casual. One result is that the argument of the book, though often closely reasoned and highly contentious, flows freely and intelligibly. This will doubtless be a virtue to many readers. Others, however, including many academic philosophers, will feel that often it flows too easily. The freedom of expression thus acquired has tempted the author to be content to say a thing vigorously and well where it should have been cautiously and carefully supported. For the most part, however, the argument is strongly maintained and the analyses often show fresh and unusual insight.

The book falls into three parts, entitled respectively "Society and the Freedom of Preference," "Absolute Morality, Choice and Law," and "The Creative Will." The first expresses the same theory of human nature as the author's earlier work, *Nature and Man*. However, as the Preface says in acknowledging this, the present work is self-contained and capable of being read without reference to the earlier.

Greatest interest attaches to the central part of the book where the author argues vigorously for an ethic that is teleological, universalistic, and objective. The view defended is an intuitionism, but an intuitionism that recognizes the tentative and fragmentary nature of our moral insights, while insisting that some claim to such insight is involved, and must be acknowledged, in every ethical assertion. Against the relativistic objection that what is admirable in one place and time is not so in others he argues

> This fact...is much too flimsy to support a theory that there are no values in nature. We would have to back it up with such hazardous suppositions as 1) that the sciences do not and should not deal with values; 2) that what is transitory, what fluctuates with time, place, civilization, is not an objective fact in nature; 3) that knowledge which is emotionally tinged or grounded is necessarily irrelevant and erroneous; 4) that so far as something is relevant to our interests it is not part of nature; 5) that what has meaning in relation to man has no analogous

meaning in relation to other beings; 6) that what is relational is not part of nature; 7) that what is private is entirely other in nature and being from what is common (p. 106).

He is ready to admit, with the pragmatists, that none of our usual objectives is an absolute value; but to those of them who go further and claim that no absolute value is possible he replies with a *tu quoque*. Their expressed preference for scientific method, for the democratic way of life, and for a life of adventure quietly presupposes the acceptance of an ideal in the light of which these preferences are made and justified. In using the implications of this ideal as a basis of criticism of any tendency to set up other goals and rules as absolute, they are themselves self-contradictory absolutists. "The true question is: what ought to be accepted, what ought to be rejected, as ultimate ethical fact? Not, are there ultimate ethical facts?" (p. 182).

The chief defect of the book, in my view, is one common to most of the writing on ethics and value theory at the present time and particularly prevalent among the "emotive" theorists and pragmatists who are poles apart from Professor Weiss. It is a failure to make or deal adequately with certain necessary distinctions, e.g., between value and obligation, between moral goodness and other forms of goodness. He also accepts the primacy of ought-to-be over ought-to-do, which, to my mind, is also a mistake.

A. CAMPBELL GARNETT

The University of Wisconsin

WINGLESS PEGASUS. A Handbook for Critics. By GEORGE BOAS. Baltimore, Johns Hopkins Press, 1950. Pp. x, 244. $3.50.

Although this book differs from a *Primer for Critics* (1937) in certain respects, it is conceived in the same spirit and dedicated to the same end (p. vii). The spirit is naturalistic, pluralistic, and relativistic. The end is to help literate people to what the author takes to be a wise critical attitude toward the fine arts. The topics of the book and the *Primer* are also similar, but arranged somewhat differently. The book opens with a general discussion of art or artistry, which is described as behavior controlled by purpose and awareness. The second chapter is on values and accepts the Perry-Prall naturalistic conception of value as the satisfaction of a drive or interest. The nine remaining chapters deal with specifically aesthetic topics: multivalence (the multiplicity of values of works of art), the rules, form, art and nature, approbation and liking, the hierarchy of values, factors influencing the hierarchy of values, standards, and the ineffable. There are two appendices: *"Il faut être de son temps"* and "The Mona Lisa in the History of Taste." The style of the book is simple and concrete. Numerous historical references are used to illustrate the argument.

Boas' cultural relativism and relish for cultural variety put him in excellent position to clear away many provincial prejudices that still pass for eternal truths about art and beauty. He makes entertaining use of his opportunities. Perhaps, the most trenchant and informative passages in the volume are those exhibiting what he calls "the transformation of perceptual objects through cultural determinants" (p. 108). Boas is sensitive to the wide variety of values in works of fine art and very skillful in indicating the queer changes of attitude wrought by shifts in social and cultural conditions.

Throughout the book, however, the philosophical reader may be haunted by an unresolved air of paradox. In several places, Boas seems to suggest that a search for unity, universality, and essence is a search for emptiness (pp. viii–ix *et passim*). One is puzzled therefore why the author takes such pains to depict what he thinks is the unitary and universal nature of artistry or art or why he introduces passages that seem to attribute an essence to art (p. 78) and to aesthetic experience (p. 120). The cultural relativism of the author also raises questions. Is cultural relativism true of all cultures? If it is, is it culturally relative? If it is not, is it as valid as the author seems to assume, especially in his advice to critics? This advice is summed up in the following sentence. The critic, "if he is wise, will confine himself to explanation, interpretation, analysis and give up praising and blaming, legislation, evaluation" (p. 193). This sentence seems to say that the critic, if he is wise, will give up value judgment or criticism for historical analysis and exegesis. Perhaps this is thoroughly sound advice for some critics. But is the author himself following it in this passage? Indeed, one wonders on what basis a relativist can critically determine what positive and negative actions are universally wise for critics to perform or, in view of the quoted sentence, can make any evaluation at all, let alone a universal evaluation for critics of the wisdom in their activity.

The fact is that Boas pays only slight attention to the larger questions raised by the problems discussed and the philosophical position advocated in this handbook. After the first chapter, the position itself is merely defined and applied, and no serious effort is made to meet the many fundamental objections, particularly of recent times, that have been brought against it. The reviewer should emphasize, however, that this handbook is primarily intended not as a treatise for philosophers but as a stimulus for a wider public. In this, notably in challenging certain well-ingrained misconceptions of art and standards, the book is markedly successful. Still, the views of recent antirelativists, antinaturalists, and antisubjectivists, for example, are very pertinent to a general up-to-date discussion of the topics dealt with. Perhaps, in a later book, Boas will come to grips with these and dispel the air of paradox that seems to permeate the present work despite its solid merits.

University of Illinois D. W. GOTSHALK

A CRITIQUE OF LOGICAL POSITIVISM. By C. E. M. JOAD. Chicago, University of Chicago Press, 1950. Pp. 154. $2.75.

Mr. Joad in this volume turns his attention to an examination of Ayer's *Language, Truth and Logic,* basing most of his criticism on the second revised edition but occasionally turning back to the first when it best suits his purpose. For taking one book instead of erecting a theory of his own which he would then demolish Mr. Joad deserves our gratitude. But since it would be impossible to go through his critique sentence by sentence, unless one were willing to write a review as long as the book itself, we shall confine ourselves to his technique of criticism exclusively.

This technique is one with which we are all only too familiar. First the critic accepts certain beliefs of his own as true and states them as if everyone else ought to accept them likewise or as if all sensible people accepted them and then shows that, according to the doctrine under discussion, they would be false. Thus since logical positivism would, according to Joad, "contemptuously dismiss," "such time-honored denizens of the philosopher's world as the Forms of Plato, the traditional values, the True, the Beautiful and the Good, the demonstrated God of Leibniz and Descartes, the Absolute of Hegel and the subsistent objects of the conceptual realists," it must be a false doctrine. But what doctrine could include all these things (though none, to be sure, need contemptuously dismiss them), and is the question not rather what reasons one produces for dismissing an idea rather than the traditional status of the idea dismissed? If we were assured that certain traditional doctrines were true once and for all, then any theory which would imply their falsity might be discarded. But if one has to make a place for all the time-honored denizens of the philosopher's world, one might as well provide room for sensible species, perfect numbers, and all the Thrones, Dominions, and Powers.

Second, Mr. Joad has a great way of tossing question-begging epithets into his text which after all have no evidential value. To say that a philosopher unceremoniously dismisses something, or that a proposal is made in the interests of a preconceived theory, or that a book has a marked materialistic bias, certainly does no more than exhibit the prejudices of the critic. Everyone writes in the interests of some theory which has to be preconceived; otherwise he would not know what he was writing about. That a materialistic bias is bad in itself is scarcely self-evident, especially in view of the vagueness of the term "materialistic."

Third, Mr. Joad has a fondness for rhetorical questions which lose their force as soon as one answers them in the negative. They are analogous to the use of the words "mere" and "merely." If a belief implies that something is sensory in nature, nothing is proved by call-

ing it merely sensory. And similarly if moral scruples turn out to be rationalizations of the impulse to blame, then calling them mere rationalizations does little more than state that the man who wrote it disagrees with the author's conclusions.

Fourth, Mr. Joad believes, as of course he has a right to, in what he calls an objective order of value, the existence of a loving God, the supernatural and miraculous powers of Christ, and — this is something of an anticlimax — the existence of classes and systems. But, he says, none of these beliefs could be held by a logical positivist. Therefore logical positivism must be wrong. That Ayer has challenged him to state arguable reasons for his beliefs seems to have escaped his notice.

This is perhaps enough to indicate the character of a book which contains many good details of criticism and whose general purpose was laudable. To examine closely the work of a single philosopher, as Mill examined the work of Hamilton, is, most people would agree, a desirable end. But if one demands of other people that they substantiate one's own beliefs, and they fail to do so, then no amount of examination does more than say, "I do not accept your premises."

GEORGE BOAS

The Johns Hopkins University

NATURE AND HISTORY. Woodbridge Lectures, Number Three. By STERLING P. LAMPRECHT. New York, Columbia University Press, 1950. Pp. xii, 155. $2.50.

All those who were fortunate enough to have known Dean Woodbridge in the flesh will recognize in this third series of lectures in his honor a great many of the traits which made him an unforgettable teacher of philosophy. Professor Lamprecht's five discourses on the natural basis of such human enterprises as physics and history have a Woodbridgian forthrightness, balance, urbanity, and sense of the richness and complexity of the inescapably real structures and events surrounding man, together with a keen impatience at the antics of those who would divert man's attention to such comparatively vain pursuits as epistemology. It is that broad approach to philosophy, "a realism which finds in nature the source, the environment, and the destiny of all that occurs," and not any fixed set of doctrines, which constitutes the Woodbridge tradition.

Inexhaustible and many-faceted nature is accepted as obviously prior to man, yet man is undeniably one form of nature's existence. He is "certainly not master of nature nor its helpless victim. Nature has brought man to pass and now sustains him for a period; nature likewise limits his achievements and denies to him much that he would have. Nature is neither solicitous about man nor alien to him....Meta-

physics is not the place for either rapture or despair" (p. 25).

As clues to the general traits manifested by nature, the author uses Aristotle's four causes rechristened as matter, form, agency, and value. Man's history "is the record of those phases of matter which are relevant to his being; his physics is the formulation of those phases of form that are relevant; freedom is the specific fashion in which in him nature's efficiency appears. So happiness is the inevitable goal of aspiration when nature's teleology is interpreted humanistically." Equipped with history and physics, man "exploits nature's pluralism and nature's contingency. He fashions that pluralism into choice and that contingency into freedom." As against Hobbes and Spinoza, Professor Lamprecht contends that "judgment as to what is good may be, and at times really is, the means whereby changes are effected in the impulses within a man and thereby in the course of events. . . ." Thus a measure of natural happiness is possible, as man "creates within a part of nature his own best economy." He should not be ashamed to be humanistic in the pursuit of his characteristic forms of happiness. "Spirit is incarnate in matter; its finer flowerings blossom upon material stalks that are rooted in the soil." (Pp. 100, 115, 129, 130, 152.)

There are many disputable bypaths in the argument, but its main tenor is so permeated with Woodbridgian common sense that it seems irresistible to one whose demands are modestly human. Yet it will not suit those who still cry out for "other-than-natural assurance" or a "more-than-human infallibility." It is not what the author in the Woodbridge tradition affirms, but what he renounces, that will make his lectures less than satisfying to those who, in Housman's language, "want the moon," but who will assuredly "get no more" than "the estate of man" as it is portrayed in *Nature and History*.

HAROLD A. LARRABEE

Union College

CONTEMPORARY ETHICAL THEORIES. By THOMAS ENGLISH HILL. New York, Macmillan Company, 1950. Pp. xiv, 369. $3.90.

THE FORMS OF VALUE. The Extension of Hedonistic Axiology. By A. L. HILLIARD. New York, Columbia University Press, 1950. Pp. xvi, 343. $4.00.

In these two very different books, the authors agree that contemporary value theory is in a diseased condition, unable to carry on its normal functions of bringing clarity to theoretical issues and providing an enlightened guide for practice.

In *Contemporary Ethical Theories*, Professor Hill undertakes to diagnose this disease as it has infected twentieth-century moral philosophy. His method is both historical and analytic. Successfully,

though of necessity very briefly, he expounds and criticizes the major types of ethical theory developed during the past fifty years. He understands and makes clear that no contemporary theory is completely novel, that each type has a long tradition in the history of philosophy as a whole. This appreciation of the history of ethics enables him to treat his contemporaries both sympathetically and judiciously: sympathetically, because each type of theory is examined in its own terms and in relation to the contemporary issues which make it particularly plausible; judiciously, because each is assessed against the others and against the particular insights made central in these others. Hill knows what ethical problems are. His analysis and criticism are refreshing in the very sureness with which he refuses to allow a problem of ethical value to be reduced to a problem about values of some other type. Yet his book offers no specific cure for the disease he is diagnosing. He suggests in his Conclusion that the most fruitful area for research seems, in the light of his analysis, to lie in the direction explored initially by such Realists as G. E. Moore, Rashdall, and Hartmann. But the disease itself will be cured, he believes, only by consultation; and this will be possible only when the consultants succeed both in developing a vocabulary by means of which they can understand each other and in collecting a sufficient amount of reliable and relevant sociological evidence.

Professor Hilliard's book, *The Forms of Value,* is strong just where Hill's work is weak. Hilliard does not, to be sure, employ a simple and relatively nontechnical vocabulary. Nor does he make any particular effort to collect and assess a large quantity of scientific evidence. He addresses himself directly to the task of showing in detail how fully adequate, as a general theory of value, is egoistic psychological hedonism. Hilliard does not attempt to argue that this form of hedonism is true. He simply formulates what he understands by it and proceeds, within a rigid set of definitions, to work out the implications of his formula. The theory, as it is developed, becomes almost fantastically complicated, both because the essentially simple hedonistic formula must be extended and applied to extremely complex cases of value and because the effort to develop the theory as an axiology requires its own special sort of machinery. Were it not for Hilliard's ingenuity in choosing striking examples to illustrate what he is arguing and how he is employing his technical terms, only the most devoted hedonist would have the determination to pursue Hilliard's argument through to the end. But his examples are both illuminating and honest, and one is led from one chapter to the next in the hope of discovering some gem like his discussion of the robot which, though known to be constructed of electronic valves and gears, must nevertheless be conceived as an organism capable of experiencing value. Hilliard sees the full implica-

tions of his theory and is anxious to make them clear even at the expense of reducing hedonism, in the eyes of nonhedonists, to ethical absurdity.

In the end, what is strange about both of these two books is the extent to which each is incomplete. Both authors insist that their works are preliminary, that they really have not in these books presented wholly adequate solutions to the problems which they have raised and which must be solved if value theory is to fulfill its theoretical and practical functions. But these books are not even preliminary. On the one hand, although Hill's work is a useful and perceptive history of contemporary ethical theory, evidence of the fruitfulness of the Realism for which Hill settles will be supplied only by intensive work by Realists, the very kind of work which Hilliard has undertaken for hedonism. Moreover, the vocabulary which moral philosophers can agree to use will in part be dependent upon the specific type of theory which proves to be fruitful, and the scientific evidence which they can agree is relevant will also be decided in part by the type of theory they accept. On the other hand, although Hilliard's work is in illuminating exercise in how to apply the simple formula of hedonism to complicated and difficult cases of value, the fundamental question is why anyone should wish to accept this formula together with all the machinery necessary to make it work out. So far as the formula itself is concerned, the principle for assessing the values which fall under it has been clear for centuries, and the fact that Hilliard's definitions allow the formula to be applied over an extensive area of human experience does not modify the principle nor establish his definitions. Indeed, because Hilliard has failed to argue for the truth of hedonism and to provide reasons why it should be accepted, his work is an exercise which any ingenious man might undertake on behalf of any traditional formula whatsoever. If egoistic psychological hedonism can in any sense be established as true, this sense, rather than Hilliard's definitions and postulates, will determine the area to which the formula can be significantly applied.

STUART M. BROWN, JR.

Cornell University

ALBERT EINSTEIN. Philosopher-Scientist. Edited by PAUL ARTHUR SCHILPP. Evanston, Illinois, Library of Living Philosophers, Inc., 1949. Pp. xvii, 781. $8.50.

This, the seventh volume in the admirable series we owe to Professor Schilpp's single-handed effort, follows the by now familiar pattern: an autobiographical statement by Einstein, essentially — characteristic of the man's modesty — an intellectual biography; twenty-five essays; concluding remarks on these essays by the central figure; a painstak-

ingly compiled bibliography, which contains even Einstein's numerous *obiter scripta* and *dicta*, the latter taken from the New York *Times*.

The list of contributors is studded with the names of illustrious physicists. Bohr, Born, De Broglie, Von Laue, Pauli, Sommerfeld, probably those best known to the general public, are joined by Heitler and three cosmologists, Lemaitre, Milne, and Robertson. Since I can hardly trust my judgment within theoretical physics and since, as is natural on an occasion of this sort, most of the material in this group of essays is not new, I shall not say much about them and say it right away, so that I may turn to what is more properly the philosopher's concern. Einstein himself has high praise for Von Laue's analysis of the notions of inertia and energy. Born's and Pauli's expositions of the movement of physical ideas during the last fifty years, though they would grace every *Festschrift* for and by physicists, can be enjoyed by the physically literate layman. The magnitude of Einstein's share in this development is well brought out by Born's considered opinion that the author of the theory of photons and of the statistical explanation of Brownian motion "would be one of the greatest theoretical physicists of all times even if he had not written a single line on relativity."

Several of the articles in this group show, in varying degree, the impact of the debate, intensified but not initiated, by the much-quoted article Einstein published in 1935 with Rosen and Podolsky, in which he stands virtually alone against the compact majority. Though nothing new is being added to the argument in the present volume, we should be grateful to Einstein for the restatement of his position and welcome Bohr's summary of the controversy. The issue itself is highly technical and, formidable authority to the contrary, not at all epistemological. Einstein holds that quantum mechanics, though ingenious in its conception and wonderfully successful in its application, is intrinsically — that is, even if one disregards the more ambitious search for a unified theory encompassing gravitation — merely a makeshift, eventually to be superseded by a theory of the "classical" type. Accordingly, the grounds for this judgment are to be found in the two major deviations of the theory from this type.

First, the ψ-functions, the basic entities of the quantum-mechanical schema, though connected by partial differential equations and, in this sense, "causal," of the "field" type and presumably acceptable, are merely mathematical entities, as may be seen from the circumstance that they fill a multidimensional phase-space, not the space-time continuum of "physical reality." (I use, in this part of my review, the phrase "physical reality" quite naively.)

Second, if the basic equations are interpreted in terms of particles, then they yield merely statistical predictions or, which is the heart of the matter, the particles of such a theory no longer possess orbits and

are, therefore, not really "particles" in the classical sense. Einstein's belief in the eventual success of a theory of the classical type is a matter of scientific, not philosophical, faith. At this point I cannot help thinking of what has been demonstrated concerning the impossibility of supplementing the present theory, which alone can account for a multitude of phenomena, by "hidden parameters" that might be used to transform it into one of the classical type. But this is a matter for scientists; so I merely note, for later reference, Einstein's profound scientific commitment to the program of nineteenth-century atomistics. There is, however, another side to this famous controversy. The 1935 paper also claims that the current account of the so-called measuring process is incompatible with the idea of an independent physical reality in the ordinary sense in which we all believe in such independence and which does not imply a philosophical position. It can be shown, and it has been shown, that this criticism rests upon a misunderstanding, interpreting as it does certain rather recondite results about pure and mixed ensembles in terms of an individual particle. The only contributor who makes this very essential point is Margenau.

If there were only the essays of the scientific group, collecting them in one volume would have been a worthy undertaking. Thus one need not raise the petty question whether Einstein is a suitable hero for the Library of Living Philosophers, even if this hero does not consider himself a technical philosopher and, though he is too kind to say so, probably smiles at the exaggerated claims which some of the philosophical contributors make for the philosophical significance of the theory of relativity. But, perhaps, this is not an improper occasion to reflect in a general way on the mutual influences between technical philosophers and those scientists whose work bears on the foundations of science. I submit that, whatever the participants themselves may think, this influence is in both directions for the most part of a rather nonspecific nature, a matter of cultural and intellectual climate, and that, therefore, it is best investigated in a psychological and historical manner. Lest this be misunderstood, I shall add three comments. Take, first, the distinction between pure and applied geometry as it emerged during the nineteenth century, partly through the labors of Helmholtz and Poincaré, who were, in a sense in which this cannot be said of Einstein, both philosophers and scientists. Reichenbach in his essay aptly reminds us that in this respect relativity is merely the consummation of a long development, though, of course, a consummation reserved to the highest genius. But it is also true, I believe, that the successful scientific use of these pre-existing ideas by Einstein has impressed them upon our civilization with an effectiveness not to be achieved in the realm of philosophical analysis alone. Second, still with respect to the idea of axiomatics, originally developed by the scientists,

it is probably among the causes behind the work of those contemporary analysts who speak of an ideal language. Third, philosophers often *mis*take scientific work as fundamental as Einstein's for what it is not, and upon the analytical conception of philosophy could not be, namely, a scientific vindication of their own metaphysics and a refutation of all others. Such beliefs are, of course, important historical facts.

Einstein has been claimed both by positivists and realists. The claims are renewed in this volume, by Ph. Frank for the former, by Northrop and others for the latter. Both sides can quote to lend color and prestige to their contentions. Nor is this very surprising, since the dominant philosophical influences in Einstein's early environment were Machian and neo-Kantian. These ideas he absorbed without critically examining them as he examined the foundations of physics; and style as well as content of his later philosophical utterances recall, for me quite nostalgically, the unmistakable flavor of this ambience. Perhaps it is less fortunate that the same may be said of quite a few philosophical essays in this volume. The most excellent are, in my opinion, by Frank, Reichenbach, Margenau, and Lenzen. Not surprisingly, there is a certain overlap among them. Nor is much of what they say new, though they often say it very well and we should again be grateful. Both Bridgman and Ushenko, for instance, could benefit from Reichenbach when he explains once more that to introduce two observers in the discussion of moving frames is merely a figure of speech; that relativity, like all physics, is only about physical objects; and that, therefore, as I should like to add, it neither proves nor violates either realism or operationism or what not. Even so, most of the material in the better essays of this group is by now quite uncontroversial. (But from this I would explicitly except Reichenbach's assertion that the idea of cause is analytically prior to our spatio-temporal notions.) There are thus several good reasons for not discussing these essays individually. I turn, instead, to some points which they either recall or suggest.

Einstein thinks of theoretical physics, mathematical in form and in its advanced stage axiomatic in method, as, in some sense, merely a bridge from experience to experience. With this, as Frank observes, no positivist need quarrel. What, then, are the reasons for Einstein's so candidly expressed dislike of positivism? Taking my own advice and proceeding historically and psychologically, I shall mention four. First, Einstein, who characteristically always speaks of *sensory* experience where I just spoke of experience and, were this not a review, would speak of our common-sense knowledge of physical objects, dislikes the "constructionism" of Mach and thinks, in best neo-Kantian style, the physical universe a necessary posit. All this is quite ironical if one considers how vigorously contemporary positivists reject all

constructionism, whether Machian or neo-Kantian or of the pragmatist-idealist variety. For the linguistic analysis of a term is one thing; to construct or, more bluntly, to make its referent is another. Second and, I believe, very important, Mach was critical of atomistics, partly on scientific grounds, partly because of his phenomenalist bias. And we have seen how firmly Einstein has always been committed to atomistics. Again this is rather ironical. For all contemporary positivists would agree that the meaning (not the truth!) of such statements as "The physical universe is real" must be thrashed out in terms of stones and chairs and that the entities of theoretical physics need not and must not be dragged into this discussion. Third, Einstein censures quite rightly Mach's and therefore, as he thinks, positivism's distrust of high-level theorizing and the strange idea — as strange to us today as the illusion behind Mill's canons and not unrelated to it in intellectual temper — that the basic concepts and laws of physics are literally "deducible" from experience or, at least, in some simplicist sense "derivable" from it by "abstraction." Naturally, this error is repulsive to the creative mind. Both Frank and Lenzen clarify the point very neatly; Ushenko, on the other hand, confuses "abstraction" in the sense just used with its homonym in the phrase "extensive abstraction." Nor is Northrop quite innocent of verbal bridge-building on related lines. Fourth, Einstein believes that positivism is, as it were, morally unwholesome for the scientist because it may weaken his desire to decipher the "mystery." This is a moot question and need not detain us.

That much for the great scientist's philosophical climate. As for the influence of philosophy on him, he tells us that readings in Hume and Mach "furthered" the analysis of simultaneity which is, of course, not only the central point of special relativity but also his most nearly philosophical achievement. This "influence" is not hard to understand. If I may for a moment fall into my own jargon, both Hume and Mach can suggest, and Mach more than suggests, that some spatial and temporal relations must be among the undefined descriptive predicates of every *Aufbau* and that the world is, in this sense, spatio-temporal rather than, like Newton's universe, in space and time. There is, of course, this difference: the scientist's undefined predicates refer to relations among physical objects, not to phenomenal givennesses or, if you please, sense data. But, on the other hand, reading and thinking of the latter may well help one to discover that only local simultaneity has, in physics, the unproblematic status a basic predicate ought to possess.

As for our scientist's influence on philosophy, I have said my piece. But let me add a few more specific comments. Historically it may be true that the obsolescence of Newtonian space and time dealt a blow

to realism. But was not Descartes, whose space is, like Aristotle's, relative and positional, a realist? Would not a clever and physically literate realist simply say that, as he now learns from science, "physical reality" is a four-dimensional manifold of a new kind? Nor does, on the other hand, the much discussed invariance of the four-distance between events constitute evidence for a realistic metaphysics. *After* the decisive analysis of simultaneity has been performed, this invariance is, in the special theory, as unproblematic as the familiar fact that while the co-ordinates of a point in Euclidean space depend on both the point and the system of co-ordinates one has chosen to represent it, the distance between two points is an invariant. In the general theory invariance is merely the *formal* expression of the basic *physical,* not philosophical, idea that the metric of the four-space depends on its content. Again, on the other side of the ledger, the events of which Einstein speaks do not support philosophical "eventism" since, as neither Bridgman nor Ushenko appreciates, they happen to physical objects. Nor does the dependence of the split of the invariant four-distance into the space and time intervals of a given frame upon this frame prove idealism by proving the ideality of "ordinary" space and time. Geodel, however, whose mathematical contribution to cosmology in this volume arouses Einstein's interest, seems to think so.

A few words must be said about Einstein's ideas on mathematics. To court absurdity for the sake of making a point, one might say that mathematics is his first love. For he is tremendously impressed with the creative freedom of the mathematical imagination as well as with the surpassing beauty of its products. Whoever has once been in Arcadia himself, if only as a lowly visitor, understands and shares this fascination. Nor does such emphasis, if taken *psychologically,* contradict the tautological character of all mathematical truths. And, to be sure, those who insist on this will be able to quote Einstein in support of their view. Only there are also other texts to quote from. There is, first, the quite extraordinary role mathematics plays in his philosophy of *method.* According to him the *via regia* of discovery is (1) to analyze the physical situation for some very general features, such as certain symmetries or invariances, which the equations one looks for must possess, and (2) to find the "simplest" equations of this type. In his hands this method has once been phenomenally successful; *ex post facto* it will often deepen our understanding. Its extreme, which Einstein avoids, is the algebraic rationalism of Eddington. But there is still another facet to Einstein's views on mathematics. He wonders again and again, *philosophically,* at the pre-established harmony that makes "mathematical" theories (i.e., more precisely, axiomatic systems) applicable to the empirical material and thus nature "intelligible." One may, if one is so moved, marvel at the lawfulness of nature;

but that, if it is lawful, its laws are mathematical is no additional source of wonder to one who appreciates the positivistic analysis of mathematics. Some work of Quine, which seems to indicate that, roughly speaking, even an arithmetical model can be made of virtually everything, makes, on a technical level, the same point.

This leads me to my final comment, concerning Einstein's philosophy in a broader sense of the term. He himself calls his confidence in the "intelligibility" of nature a faith and, sometimes, a cosmic religion. Tactfully but firmly Frank reminds him that this is not a very usual meaning of "religion." The motive of this criticism is, I think, the fear that aid and comfort be given to certain traditional forces for whose containment in purely intellectual matters we owe a great debt to the last generations. Theirs was and, on the proper occasions, still is a good fight. But there are other and, perhaps, more timely grounds for criticism. I respectfully object to Einstein's formula because it seems to condone nature worship and because there are many historical and psychological lines running to and fro among nature worship, scientism, and romanticism. And, as I recently read in a brilliant essay, scientism and romanticism are the twin barbarisms that threaten to engulf our civilization. But above these perils the spirit of the master, who flowered and bore fruit in friendlier climes, soars serenely.

GUSTAV BERGMANN

State University of Iowa

THE GREEK CYNICS. By FARRAND SAYRE. Baltimore, J. H. Furst Company, 1948. Pp. 112. $1.50.

This work is a thoroughly revised and somewhat enlarged edition of the author's book *Diogenes of Sinope: A Study of Greek Cynicism,* which was published in 1938. The titles of the chapters have remained the same, though their order is somewhat changed, and two appendixes with translations of fragments of the works of Crates of Thebes and anecdotes about him and Bion of Borysthenes have been added, while the bibliography included in the earlier book has been omitted. But the text has been completely rewritten and even the conclusions differ to some extent from those which the author reached in his earlier work.

In the first chapter the author tries to show that the central idea of Cynicism is to achieve happiness through freedom in every form: freedom from desire, from fear, anger, grief, and other emotions, from public conventions, from public opinion, from the state, from the care of property, and from the support of wife and children; and that "virtue" as understood by the Cynics is a means toward that end and not an end in itself. This is undoubtedly correct and really gives the key to Cynic philosophy. In the second chapter the author tries to show

that the beginnings of a quest for such freedom can be traced back to the late fifth and the first half of the fourth century. He is also right in pointing out certain similarities between the philosophy of Aristippus and that of the Cynics, though the way in which Aristippus tried to achieve this freedom was very different from the Cynic way.

If this is accepted however, one may, perhaps go somewhat farther and point out that this quest for freedom was a tendency that was very widespread in that time and could express itself in a great many different forms. Socrates, according to the tradition, was certainly most scrupulous in fulfilling his duties as an Athenian citizen. Yet when he was asked why, since he blamed the active politicians for their ignorance, he did not take an active part in politics himself, he answered that if he had done so he would not have lived very long considering his philosophical principles. This is a far cry from the Solonian principle that a citizen who in a time of civil strife refrains from participation in the party struggle must be punished for having neglected his duty as a citizen.

There can be no doubt that Socrates disapproved or, if Aristippus developed his philosophy as we know it after Socrates' death, would have disapproved of Aristippus' philosophy. Yet this hardly justifies the claim that Aristippus was in no way a Socratic. Plato's statement about Aristippus' absence at Socrates' death, whether it was meant as blame or not, certainly presupposes that Aristippus belonged to a circle of closest friends and disciples; and there are certainly Socratic elements, however adulterated, in Aristippus' philosophy.

The same may be said about the relation between Diogenes and Antisthenes. The author is quite correct in pointing out that there are very essential differences between Antisthenes and Cynicism as we know it in later times. But the quest for freedom from entanglements in public life is not foreign to Antisthenes either, and his contempt for material goods, even though less exaggerated than with Diogenes, his emphasis on training in hardships, his striving for freedom from desires and violent emotions have a strong similiarity to Cynic philosophy. Generally speaking, I think it is not unfair to say that the author has a tendency to deny any relations between philosophers and philosophical schools where there are essential differences. But a complete analysis should pay equal attention to both sides of the question. If this is done the question of whether a man was a Socratic or a Cynic, etc., loses much of its significance. There probably never was a true Socratic, a true Platonist, or a true Kantian. But there have been many men who believed that they were true Platonists or Kantians, perhaps even some who thought that they were better Kantians than Kant himself. The same may have been true in some of the cases mentioned.

Though the author is undoubtedly right in pointing out that a very

large part of the ancient tradition on Diogenes is legendary, there seems to be also a certain tendency to deal somewhat too lightly with evidence taken from authors contemporary with the philosopher about whom they write. It is, for instance, perhaps not without significance that the few contemporary testimonies on Diogenes that we have picture him as somewhat nearer to Antisthenean principles of life than do later anecdotes. The logical theory of Antisthenes is certainly not quite so unknown as the author claims. The numismatic evidence concerning Diogenes' father would have deserved closer scrutiny. The fact that the bad coinage with Sinopian inscriptions seems of foreign origin, a fact not mentioned by the author, supports the theory of Mr. Seltmann that Diogenes' father Hikesias did not debase — or, as the author says, counterfeit, though this is a very different thing — the Sinopian currency; and the claim that Hikesias could not have been exiled because, as a sound money man, he invalidated the debased currency imported from abroad, since this would have been a patriotic deed, seems to disregard the less pleasant possibilities of political life.

But enough of criticism. To those readers who do not know Greek, the author has done a great service by giving translations of all the most important passages in ancient authors that are relevant to his subject so that in most cases the reader can form his own judgment.

KURT VON FRITZ

Columbia University

BOOKS RECEIVED

(Listing does not preclude subsequent review.)

THE SEARCH FOR A WAY OF LIFE. A Review of the Major Classical and Contemporary Ethical Systems of the Western World. By E. E. KRESGE. New York, Exposition Press, 1950. Pp. xiv, 434. $4.00. — In this "review of the major classical and contemporary ethical systems of the world," ethical theories are classified as Intuitionalism–Idealism, Hedonism, Humanism, and theories of the social or collective will. Each of these types is illustrated by expositions, in nontechnical language, of several classical moral theories; and the practical bearing of each type is discussed in terms of contemporary issues. Kresge's treatment is undogmatic. The book as a whole is an exercise in exposing, for the benefit of those who have not read moral philosophy in the original texts, the different aspects of the good life which ethical theorists have undertaken to analyze and clarify.

WHITEHEAD AND THE MODERN WORLD. Science, Metaphysics, and Civilization. Three Essays on the Thought of Alfred North Whitehead. By VICTOR LOWE, CHARLES HARTSHORNE, A. H. JOHNSON. Preface by A. CORNELIUS BENJAMIN. Boston, Beacon Press, 1950. Pp. viii, 56. $1.50 — These three essays were read, as part of a symposium on Whitehead, at the Western Division Meeting of the American Philosophical Association on May 8, 1949. Victor Lowe writes on Whitehead's philosophy of science, Charles Hartshorne on Whitehead's metaphysics, and A. H. Johnson on Whitehead's philosophy of civilization.

AN INTRODUCTION TO LOGIC. Vol. I: Deduction. Vol. II: Induction. By A. C. DAS. Calcutta, Kamala Book Depot, 1949. Pp. xii, 347; x, 258. Rs. 4/- each.

GERARD DE NERVAL, 1808–1855. Poet, Traveler, Dreamer. By S. A. RHODES. New York, Philosophical Library, 1950. Pp. xii, 416. $4.75.

WHITEHEAD'S THEORY OF EXPERIENCE. By EWING P. SHAHAN. New York, King's Crown Press, 1950. Pp. 140. $2.50 — This book is an exegetical and critical study of Whitehead's theory of "life" or experience, both at the tenuous metaphysical level of actual entities and at the level of human experience. Two views of experience are properly attributed to Whitehead by the author: a narrow or limited view which appears in his early "extension" analysis of nature, and a broader view which appears in the later metaphysical "process" analysis. The two views are shown to be incompatible as formulated, although Whitehead attempts to hold both views at the same time in his later works. As a genetic account of some of the conflicts and difficulties in Whitehead's mature philosophy, this study is of value.

STOIC, CHRISTIAN, AND HUMANIST. By GILBERT MURRAY. Boston, Beacon Press, 1950. Pp. 189. $2.00. — Four earlier pieces: reprints of essays, "Pagan Religion and Philosophy at the Time of Christ" (1929) and "The Conception of Another Life" (1914), and the text of two lectures, "The Stoic Philosophy" (1915) and "What is Permanent in Positivism," Comte Lecture for 1939. In different contexts they all assert Gilbert Murray's lifelong faith that neither religious orthodoxy nor even theistic belief is "necessary for moral salvation."

READINGS IN BUSINESS ETHICS. A Survey of the Principles and Problems of American Business Morality. Selected and Arranged by MAURICE BAUM. Dubuque, Iowa, W. C. Brown Co., 1950. $3.25. — This collection of contemporary writings on the theory and practice of business ethics covers such topics as ethical problems of selling, ethical problems of competition, ethical problems of advertising, and voluntary organized efforts to raise standards of business morality.

PLOTINUS' SEARCH FOR THE GOOD. By JOSEPH KATZ. New York, King's Crown Press, 1950. Pp. xii, 106. $2.50.

LOGIC. An Introduction. By LIONEL RUBY. Philadelphia, J. B. Lippincott Co., 1950. Pp. xvi, 496. $4.00.

METHODS OF INQUIRY. An Introduction to Philosophy and Scientific Method. By C. WEST CHURCHMAN and RUSSELL L. ACKOFF. Saint Louis, Educational Publishers, Inc., 1950. Pp. 558. $6.00.

NIETZSCHE. Philosopher, Psychologist, Antichrist. By WALTER A. KAUFMANN. Princeton, Princeton University Press, 1950. Pp. xi, 409. $6.00.

THE "WHY" OF MAN'S EXPERIENCE. By HADLEY CANTRIL. New York, Macmillan Company, 1950. Pp. xiv, 198. $2.75.

IDEA-MEN OF TODAY. By VINCENT EDWARD SMITH. Milwaukee, Bruce Publishing Co., 1950. Pp. xii, 434. $5.00.

ETHICAL THEORIES. A Book of Readings. Edited by A. I. MELDEN. New York, Prentice-Hall, Inc., 1950. Pp. x, 386. $4.00.

MODERN PHILOSOPHERS. Western Thought since Kant. By HOWARD C. MCELROY. New York, Russell F. Moore Co., 1950. Pp. xiv, 268. $4.00.

MAN IN HIS PRIDE. A Study on the Political Philosophy of Thucydides and Plato. By DAVID GRENE. Chicago, University of Chicago Press, 1950. Pp. ix, 231. $4.00.

THE PROCEEDINGS AND ADDRESSES OF THE CONFERENCE ON THE TEACHING OF PHILOSOPHY. (Western Reserve University, October 14–15, 1949.) Edited by FREDERICK P. HARRIS. Cleveland, 1950. Pp. vi, 92. No price given.

ESSAYS IN TEACHING. Edited by HAROLD TAYLOR. New York, Harper Brothers, 1950. Pp. x, 239. $3.00.

BOOKS RECEIVED

MAIN CURRENTS IN MODERN POLITICAL THOUGHT. By JOHN H. HALLOWELL. New York, Henry Holt & Co., 1950. Pp. xiv, 759. $4.25.

THE MORAL LIFE AND THE ETHICAL LIFE. By ELISEO VIVAS. Chicago, University of Chicago Press, 1950. Pp. xx, 390. $6.00.

THE SOCIAL PHILOSOPHY OF JOSIAH ROYCE. Edited and with an Introductory Essay by STUART GERRY BROWN. Syracuse, New York, Syracuse University Press, 1950. Pp. viii, 220. $3.00.

FROM WEALTH TO WELFARE. The Evolution of Liberalism. By HARRY K. GIRVETZ. Stanford, California, Stanford University Press, 1950. Pp. xiv, 323. $5.00.

THE PLACE OF REASON IN ETHICS. By STEPHEN EDELSTON TOULMIN. New York, Cambridge University Press, 1950. Pp. xiv, 228. $3.25.

A HISTORY OF PHILOSOPHICAL SYSTEMS. By VERGILIUS FERM. New York, Philosophical Library, 1950. Pp. xvi, 642. $6.00.

AQUINAS AND KANT. The Foundations of the Modern Sciences. By GAVIN ARDLEY. New York, Longmans, Green and Co., 1950. Pp. x, 256. $3.50.

THE BEATEN PATHS. By GEORGE M. HODGSON. New York, Exposition Press, 1950. Pp. 104. $2.75.

THE OPEN SOCIETY AND ITS ENEMIES. By KARL R. POPPER. Princeton, Princeton University Press, 1950. Pp. xii, 732. $7.50.

SOCIAL PHILOSOPHIES OF AN AGE OF CRISIS. By PITIRIM A. SOROKIN. Boston, Beacon Press, 1950. Pp. xii, 345. $4.00.

ARISTOTLE'S CONSTITUTION OF ATHENS AND RELATED TEXTS. Translated with an Introduction and Notes by KURT VON FRITZ and ERNST KAPP. New York, Hafner Publishing Co., 1950. Pp. xii, 233. $1.25 (paper bound); $2.50 (cloth bound).

DIVINE TRANSCENDENCE IN THE OLD TESTAMENT. By HUGHELL E. W. FOSBROKE. Evanston, Illinois, Seabury-Western Theological Seminary, 1950. Pp. 26. 35 cents.

THE RISE OF WORDS AND THEIR MEANINGS. By SAMUEL REISS. New York, Philosophical Library, 1950. Pp. x, 301. $3.75.

AN AUTOBIOGRAPHY. By ARTHUR KEITH. New York, Philosophical Library, 1950. Pp. viii, 721. $4.75.

THE ATOMIC-MOLECULAR THEORY. By LEONARD K. NASH. Cambridge, Massachusetts, Harvard University Press, 1950. Pp. v, 115. $1.35.

ORIGIN OF HISTORY AS METAPHYSICS. By MARJORIE L. BURKE. New York, Philosophical Library, 1950. Pp. x, 61. $2.75.

THE BREAKING OF THE CIRCLE. Studies in the Effect of the "New Science" upon Seventeenth Century Poetry. By MARJORIE HOPE NICOLSON. Evanston, Illinois, Northwestern University Press, 1950. Pp. xxii, 193. $3.00.

PUBLIC OPINION AND POLITICAL DYNAMICS. By MARBURY BLADEN OGLE, JR. Boston, Houghton Mifflin Co., 1950. Pp. vi, 362. $3.50.

TIME AND FREE WILL. An Essay on the Immediate Data of Consciousness. By HENRI BERGSON. Authorized translation by F. L. POGSON. London, George Allen & Unwin, Ltd.; New York, Macmillan Co., 1950. Pp. xxviii, 252. $2.75.

WHAT ABOUT COMMUNISM? Public Affairs Pamphlet No. 164. By ARTHUR M. SCHLESINGER, JR. New York, Public Affairs Committee, Inc., 1950. Pp. 32. 20 cents.

MATTER AND MEMORY. By HENRI BERGSON. Authorized Translation by NANCY MARGARET PAUL and W. SCOTT PALMER. London, George Allen & Unwin, Ltd.; New York, Macmillan Co., 1950. Pp. xxiv, 339. $2.75.

PRINCIPLES OF GENERAL PSYCHOPATHOLOGY. By SIEGFRIED FISCHER. New York, Philosophical Library, 1950. Pp. xxiv, 327. $4.75.

AMERIKANISCHE PHILOSOPHIE. By GUSTAV E. MÜLLER. Stuttgart, Germany, Fr. Frommanns Verlag, 1950. Pp. viii, 336. No price given. — A second edition, enlarged and revised.

DER WIENER KREIS. Der Ursprung des Neopositivismus. By VICTOR KRAFT. Wien, Springer-Verlag, 1950. Pp. vi, 179. $2.50.

LECONS DE PHILOSOPHIE DES SCIENCES EXPERIMENTALES. By AUGUSTE GREGOIRE. Paris, France, J. Vrin, 1950. Pp. 230. No price given.

MAURICE MAETERLINCK ET SON OEUVRE. Tome Premier. By MAURICE LECAT. Bruxelles, Belgique, Chez l'Auteur, 1950. Pp. viii, 454. No price given.

ETUDES DE PHILOSOPHIE DES SCIENCES. En hommage à Ferdinand Gonseth. By Various Authors. Neuchatel, Switzerland, Editions du Griffon, 1950. Pp. 175. No price given.

ENCHIRIDION DE STATIBUS PERFECTIONIS. Vol. I. Documenta Ecclesiae Sodalibus Instituendis. Romae, Officium Libri Catholici, 1949. Pp. lxii, 651. No price given.

LA FILOSOFIA D'OGGI AL CONGRESSO DI AMSTERDAM. By PAOLO FILIASI CARCANO. Roma, Soc. Ed. del "Foro Italiano," 1950. Pp. viii, 143. No price given.

DALL'UNIVERSO A DIO. By GENNARO DI GRAZIA. Padova, Italy, Casa Editrice Dott. Antonio Milani, 1950. Pp. 131. Prezzo L. 1000.

PRINCIPIOS DE PSICOLOGIA. By J. ALVES GARCIA. Com un Prefacio do MAURICIO DE MEDEIROS. Rio de Janeiro, Brasil, Departamento de Imprensa Nacional, 1950. Pp. 303. No price given.

ENSAYOS SOBRE EL RENACIMIENTO ITALIANO. By RODOLFO MONDOLFO. Tucuman, Argentina, Instituto de Filosofia, Universidad Nacional de Tucuman, 1950. Pp. 63. No price given.

DIE ERKENNTNIS UND IHRE LEISTUNG. Die naturwissenschaftliche Methode. By B. JUHOS. Wein, Germany, Springer-Verlag, 1950. Pp. vi, 263. $3.80.

NOTES

Milton C. Nahm, Secretary-Treasurer of the Eastern Division of the American Philosophical Association, reports that the Eastern Division, at its forty-seventh annual meeting, adopted by a unanimous vote the following resolution:
BE IT RESOLVED that the Eastern Division of the American Philosophical Association

a. deplores the violation, by the Regents of the University of California, of long established traditions of academic freedom and tenure, in failing to reappoint members of the faculty who had been recommended for reappointment by the President after having been cleared by the Committee on Privilege and Tenure;
b. urges the Regents reconsider their action of August 25, both in the interests of the faculty members concerned, and because of the harm this action has done to one of the country's most distinguished universities;
c. urges upon the Regents a return to the principles of academic freedom and tenure thus threatened at the University of California;
d. requests its members not to accept faculty appointment to the University of California until the Regents take such action.

A new quarterly journal, *Soviet Studies,* is being edited by J. Miller and R. A. J. Schlesinger on behalf of the Department for the Study of the Social and Economic Institutions of the U.S.S.R. at the University of Glasgow, and is being published by Basil Blackwell, Oxford, England.

Volume One contains articles, discussions, translations, and book reviews on the following topics: Academic Institutions and Education, Arts, Economic Institutions, Economic Theory, Foreign Policy, Law, Philosophy, Political and Economic History, and Social Institutions.

The subscription rate is $3.50 per year, payable to Basil Blackwell, Broad Street, Oxford, England.

Corpus Général des Philosophes Français, a fifty-volume set containing all the major works in French philosophy written during the period 1600–1850, is being published by Les Presses Universitaires de France. Information about the project as a whole and about orders either for individual volumes or for the entire series can be obtained from the Director: Professor Raymond Bayer, 51 Avenue Georges-Mandel, Paris 16, France.

Erratum: In Professor Quine's article, "Two Dogmas of Empiricism" (this *Review,* January, 1951), the second full sentence on page 24 should read: "Otherwise there would be a state-description which assigned truth both to 'John is a bachelor' and to 'John is married,' and consequently 'No bachelors are married' would turn out synthetic rather than analytic under the proposed criterion."

At the annual meeting of the Southwestern Philosophical Conference at Fort Worth, Texas on December 29, 1950, the following officers were elected for 1951:

President: Hubert G. Alexander, University of New Mexico.

Vice-President: Edward S. Robinson, University of Kansas.

Secretary-Treasurer: Ian P. McGreal, Southern Methodist University.

Additional members of the Executive Committee: A. Cornelius Benjamin, University of Missouri. James Street Fulton, The Rice Institute. Millard Scherich, Oklahoma A. and M. College.

ARTICLES IN CURRENT PHILOSOPHICAL PERIODICALS

MIND LIX 236: *A. M. Turing,* Computing Machinery and Intelligence; *P. T. Geach,* Subject and Predicate; *P. D. Wienpahl,* Frege's *Sinn und Bedeutung; W. J. Rees,* The Theory of Sovereignty Restated; *F. C. Copleston,* A Note on Verification; *A. Pap,* Ostensive Definition and Empirical Certainty; *P. Alexander,* Pragmatic Paradoxes; *J. Watling,* The Causal Theory of Perception; *S. Hampshire,* "Fallacies in Moral Philosophy": A Reply to Mr. Baier; *T. McPherson,* The Existence of God; *A. A. Luce,* Berkeley's *Philosophical Commentaries; M. Warnock,* A Note on Aristotle: Categories 6a 15; *C. D. Broad,* Moral Obligation: Essays and Lectures by H. A. Prichard.

PHILOSOPHY XXV 95: *A. K. White,* The Nature and Status of the Study of Politics; *R. C. Cross,* Ethical Disagreement; *T. D. Weldon,* Appraisals; *G. J. Whitrow,* On the Synthetic Aspect of Mathematics; *J. L. Fraser,* Ethical Objectivity; *G. A. Birks,* Toynbee and His Critics; Philosophical Survey: German Philosophy.

THE PHILOSOPHICAL QUARTERLY I 1: *N. Kemp Smith,* The Scots Philosophical Club; *A. S. Ferguson,* The Platonic Choice of Lives; *W. G. Maclagan,* On Being Sure of One's Duty; *J. J. C. Smart,* Descartes and the Wax; *H. G. ten Bruggencate,* Hegel's View on War; *D. J. Allan,* Philosophical Surveys.

THE JOURNAL OF PHILOSOPHY XLVII 21: *Arthur O. Lovejoy,* Terminal and Adjectival Values. 22: *W. V. Quine,* Identity, Ostension, and Hypostasis; *Irving M. Copi,* Gödel and the Synthetic *A Priori:* A Rejoinder. 23: *Gardner Williams,* Hedonism, Conflict, and Cruelty; *Marguerite H. Foster,* Poetry and Emotive Meaning. 24: *Iredell Jenkins,* Logical Positivism, Critical Idealism, and the Concept of Man; *Max Rieser,* Brief Introduction to an Epistemology of Art. 25: *Israel Scheffler,* The New Dualism: Psychological and Physical Terms; *Campbell Crockett,* The Confusion over Nominalism.

PHILOSOPHY AND PHENOMENOLOGICAL RESEARCH XI 1: *M. Jerome Stolnitz,* On Ugliness in Art; *A. M. Bogoutdinov* (translated from the Russian), A Notable Philosophical Production of the Tadjik People: Ibn-Sina's *Donish-Nameh; John W. Yolton,* F. C. S. Schiller's Pragmatism and British Empiricism; *R. I. Markus,* Alexander's Philosophy: The Emergence of Qualities; *Mary L. Coolidge,* Some Vicissitudes of the Once-born and the Twice-born Man; *Thelma Z. Lavine,* Knowledge as Interpretation: An Historical Survey.

ETHICS LXI 1: *Hans Kelsen,* Causality and Imputation; *Paul Diesing,* The Nature and Limitations of Economic Rationality; *Michael Polanyi, Martin Gardner,* Beyond Cultural Relativism; *Sidney C. Sufrin,* Progress and Liberalism in the Thoughts of Henry Simons; *George Kimball Plochmann,* Some Neglected Considerations on Pleasure and Pain; *Douglas N. Morgan,* On Analysis, Beauty, and Duty; *John M. Anderson,* Gotshalk's Relational Theory of Value; *Richard H. Popkin,* A Note on the "Proof" of Utility in J. S. Mill; *Kurt H. Wolff,* On the Scientific Relevance of "Imputation."

PHILOSOPHY OF SCIENCE XVII 4: *Marion Levy,* Some Basic Methodological Difficulties in Social Science; *Hugues Leblanc,* On Definitions; *Richard Taylor,* Comments on a Mechanistic Conception of Purposefulness; *A. Rosenblueth* and *N. Wiener,* Purposeful and Non-purposeful Behavior; *Richard Taylor,* Purposeful and Non-purposeful Behavior: A Rejoinder; *Hao Wang,* On Skepticism about Induction; *Frederick L. Will,* Skepticism and the Future; *Jean Phillips,* The Concept "Disposition to Respond" in a Behavioral Semiotic; *Charles Morris,* Comment on the Paper by Jean Phillips.

SCIENCE AND SOCIETY XIV 4: *Paul Phillips,* The German Trade Union Movement under American Occupation; *Christopher Hill,* Historians on the Rise of British Capitalism; *Vera Shlakman,* Unionism and Professional Organizations among Engineers.

THE ANTIOCH REVIEW X 3: *Richard C. Snyder,* The Task Ahead; *John P. Lewis,* Our Mixed Economy; *William D. Grampp,* Autobiography of an Economic Man; *Arnold M. Rose,* The Problem of a Mass Society; *Harold L. Sheppard,* The Social and Historical Philosophy of Elton Mayo; *Louis Schneider,* An Industrial Sociology — for What Ends?

THE PERSONALIST XXXII 1: *The Editor,* Studies in American Personalism, III; *Philip Merlan,* From Hume to Hamann; *Richard Hope,* Plato's Phaedo in Deathlessness; *Charles A. S. Dwight,* Whitehead the Inscrutable; *James A. Pait,* The Unity of the Self; *Darrel Abel,* The Theme of Isolation in Hawthorne: Part One.

THOUGHT XXV 99: *Charles Malik,* The Crisis of Faith; *Mikhail Koriakov,* The Faith of the Soviet; *Bohdan Chudoba,* And What of the Satellites?; *André Godin,* The Tensions of Catholicism; *Francis X. Connolly,* Literary Consciousness and the Literary Conscience; *William F. Lynch,* The Partisan Review Symposium; *Edward F. Sheridan,* A Note on Mr. Blanshard.

THE JOURNAL OF AESTHETICS AND ART CRITICISM IX 1: *Milton C. Nahm,* Genius and the Aesthetic Relation of the Arts; *Peter A. Carmichael,* The Phantom of Critical Objectivity; *Wayne Shumaker,* The Condition of Critical Valuation; *Bertram Jessup,* Aesthetic Size; *Karel Svoboda,* Content, Subject, and Material of a Work of Literature; *Sholom J. Kahn,* Critical Judgment and Professor Pepper's "Eclecticism"; *Stephen C. Pepper,* Some Comments on Professor Kahn's Paper; *John Dewey,* Aesthetic Experience as a Primary Phase and as an Artistic Development.

THE REVIEW OF POLITICS XII 4: *Josef Pieper,* The Social Meaning of Leisure in the Modern World; *Leo Strauss,* Natural Right and the Historical

Approach; *Hans Kohn,* Romanticism and the Rise of German Nationalism; *John M. H. Lindbeck,* Communism, Islam and Nationalism in China; *M. A. Fitzsimons,* The Masque of Uncertainty: Britain and Munich; *N. S. Timasheff,* The Soviet Concept of Democracy.

THE HIBBERT JOURNAL XLIX 192: *Arnold Toynbee,* Religion and the Rise of Western Culture; *G. R. Driver,* New Hebrew Scrolls; *L. P. Jacks,* Is Loisy Negligible as a Critic of the New Testament?; *H. L. Stewart,* Why the Reformation Must Be Neither Compromised nor Explained Away; *S. G. F. Brandon,* Tübingen Vindicated?; *G. N. M. Tyrrell,* Have We Realized All that Evolution Implies?; *F. H. Heinemann,* Man without Mind?; *R. Gregor Smith,* Karl Jaspers on Theology and Philosophy; *Hamilton Fyfe,* Communism as a Religion; *Betty Heimann,* The Outsider in Society; *F. H. Heinemann* and *E. L. Allen,* Survey of Recent Philosophical and Theological Literature.

THE THOMIST XIII 4: *Marceliano Llameras,* Fatima: The Rosary and the Heart of Mary; *J. T. Delos,* The Dialectics of War and Peace (Conclusion); *David L. Greenstock,* Thomism and the New Theology.

FRANCISCAN STUDIES X 3: *Dr. Zeno,* Newman's Psychological Discovery: The Illative Sense; *Damian Van den Eynde,* William of Saint-Thierry and the Author of the *Summa Sententiarum; Martiniano Roncaglia,* The Sons of St. Francis in the Holy Land; *Hermenegildus Lio,* De elementis traditionalibus justitiae in primaeva schola franciscana.

JOURNAL OF THE HISTORY OF IDEAS XI 4: *Eugene F. Rice, Jr.,* Erasmus and the Religious Tradition, 1495–1499, *Walter Kirchner,* Mind, Mountain, and History; *Joseph R. Levenson,* The Breakdown of Confucianism: Liang Ch'i-Ch' 'ao Before Exile — 1873–1898; *Philip Merlan,* Parva Hamanniana: Hamann and Galiani; *Carl F. Taeusch,* On Addison W. Moore; *Benjamin Wolstein,* A Note on the Functional Theory of Habit.

THE MODERN SCHOOLMAN XXVIII 1: *Peter E. Nash,* Giles of Rome: Auditor and Critic of St. Thomas; *Anton-Hermann Chroust,* The Meaning of Some Quotations from St. Augustine in the *Summa Theologica* of St. Thomas (Continued); *Arthur Berndtson,* Notes on Universals; *Linus J. Thro,* A Note on "Notes on Universals"; *Robert W. Schmidt,* An Emendation of a Reply of St. Thomas Aquinas's *De Potentia* 9. 7 ad 6.

THE JOURNAL OF RELIGION XXX 4: *A. Roy Eckhardt,* Christian Faith and the Jews; *Robert Stevenson,* Bach's Religious Environment; *John M. Anderson,* Force and Form: The Shaker Intuition of Simplicity; *John E. Smith,* Royce on Religion.

THE REVIEW OF RELIGION XV 1–2: *Frederick P. Bergebuhr,* Ibn Gabirol's Poem Beginning "Ahavtikha..."; *Frances E. White,* Unorthodox Tendencies in Tennyson; *Robert Leet Patterson,* McTaggart's Conception of the Beatific Vision.

THE NEW SCHOLASTICISM XXIV 4: *Editorial,* Cybernetics; *Pierre Conway,* and *George Q. Friel,* Farewell, Philosophy; *Francis X. Meehan,* Professor Stace and the Principle of Causality; *John Noonan,* The Existentialism of Etienne Gilson; *Walter Farrell,* Law in Aristotle and St. Thomas.

ANGLICAN THEOLOGICAL REVIEW XXXII 4: *John S. Marshall,* History in the Aristotelian Vein; *J. P. Hickinbotham,* Intercommunion; *P. N. Harrison,* Onesimus and Philemon; *Joshua Bloch,* An Early Hebrew Translation of the Book of Common Prayer.

THE HARVARD THEOLOGICAL REVIEW XLIII 4: *G. W. Anderson,* Some Aspects of the Uppsala School of Old Testament Study; *H. J. Rose,* Ghost Ritual in Aeschylus; *Geddes MacGregor,* The Row Heresy.

SPECULUM XXV 4: *Laura Hibbard Loomis,* The Holy Relics of Charlemagne and King Athelstan: The Lances of Longinus and St. Mauricius; *Michael R. Powicke,* Distraint of Knighthood and Military Obligation under Henry III; *Mary Hatch Marshall,* Boethius' Definition of *Persona* and Medieval Understanding of the Roman Theater; *Zeph Stewart,* Insular Script without Insular Abbreviations: A Problem in Eighth-Century Palaeography; *F. N. Robinson,* Anniversary Reflections; *Kenneth M. Setton,* The Bulgars in the Balkans and the Occupation of Corinth in the Seventh Century; *John H. Kent,* A Byzantine Statue Base at Corinth.

THE BRITISH JOURNAL FOR THE PHILOSOPHY OF SCIENCE I 1: *H. Dingle,* A Theory of Measurement; *E. W. Beth,* Critical Epochs in the Development of the Theory of Science; *M. H. Pirenne,* Descartes and the Body-Mind Problem in Physiology; *Philipp Frank,* Metaphysical Interpretations of Science, Part I. 2: *Philipp Frank,* Metaphysical Interpretations of Science, Part II; *G. J. Whitrow,* On the Foundations of Dynamics; *E. S. Russell,* The "Drive" Element in Life; *K. R. Popper,* Indeterminism in Quantum Physics and in Classical Physics, Part I; *L. von Bertalanffy,* An Outline of General System Theory.

THE AUSTRALASIAN JOURNAL OF PHILOSOPHY XXVIII 2: *W. D. Falk,* Morality and Nature; *K. B. Pflaum,* Hume's Treatment of Belief.

THE BRITISH JOURNAL OF PSYCHOLOGY XLI 1 and 2.
THE AMERICAN JOURNAL OF PSYCHOLOGY LXIII 4.
PSYCHOLOGICAL REVIEW LVII 5, 6.
PSYCHOLOGICAL BULLETIN XLVII 6.
JOURNAL OF EXPERIMENTAL PSYCHOLOGY XL 5.

JEWISH SOCIAL STUDIES XII 4: *Jacob J. Rabinowitz,* Jewish and Lombard Law; *Felix Gruenberger,* The Jewish Refugees in Shanghai; *H. G. Reissner,* Indian-Jewish Statistics (1837–1941); *Edmund Silberner,* Pierre Leroux's Ideas on the Jewish People.

THE MAHA BODHI LVIII 6–7: *Bhikkhu Kassapa of Vajirarama,* Life's Realities; *R. J. Jackson,* Faith, Hope, and Charity *Narada Maha Thera,* Buddhism in the West; *J. R. Jayawardene,* Buddhism and Marxism. 8: *B. L. Broughton,* Can Buddhism Help?; *Francis Story,* Rewards and Punishments; *R. L. Soni,* The World Fellowship of Buddhists — Some Impressions. 9: *S. A. Wijayatilake,* Some Pioneers of the Buddhist Revival; *J. Pistor,* The Wisdom-Religion of the Dharma; *H. de S. Kularatne,* The Unique Path; *Rajan Kumar Raval,* Buddhist Art.

REVUE DE METAPHYSIQUE ET DE MORALE LV 3: *E. Husserl,* La Crise de l'humanité européenne et la philosophie; *B. Croce,* Historicisme pur et impur; *R. Caillois,* Évidence et histoire; *L. Goldmann,* Matérialisme dialectique et histoire de la littérature; *R. Ruyer,* Marx et Butler ou technologisme et finalisme; *M. Dambuyant,* La Psychologie historique d'après M. I. Meyerson.

REVUE PHILOSOPHIQUE LXV 10 a 12: *E. Minkowski,* Aperçu sur l'évolution des idées en psychopathologie; *J. Chateau,* Le Sérieux et ses contraires; *N. Kostyleff,* La Réflexologie et la synthèse philosophique; *G. Lewis,* L'Intervention de Nicole dans la polémique entre Arnauld et Malebranche; *J. Vuillemin,* Le "Monde de l'esprit" selon Dilthey.

REVUE D'ESTHÉTIQUE III 2: *Ch. Lalo,* L'Age optimum des mutations maitresses dans l'histoire des arts; *A. Ponceau,* Paysages et destins balzaciens; *Anne Souriau,* L'Espace-temps théâtral dans *Le Cid.*

REVUE DES SCIENCES HUMAINES N.S. 59: *Cl. Liprandi,* Sur un épisode de *Rouge et Noir:* Un roi à Bray-le-Haut; *G. Daumas,* Notes et recherches sur le poète Berthelot; *L. Lafuma,* Le Puzzle des *Pensées; G. Blanquis,* Stephan George et Hofmannsthal: Une amitié manquée; *R.-F. Byrnes,* Marpon et Flammarion: Contribution à l'histoire de l'édition; *L. Mis,* Stanis Przybyszewski et la Littérature allemande; *P.-G. Castex,* Une source de *la Fée aux miettes.*

BULLETIN DES SOMMAIRES ET COMPTES-RENDUS BIBLIOGRAPHIQUES DES PERIODIQUES FRANCAS ET ETRANGERS 186 (24 Aout 1950 [I]), 187 (24 Aout 1950 [II]), 188 (24 Aout 1950 [III]), 189 (24 Aout 1950 [IV]).

NOUVELLE REVUE THEOLOGIQUE LXXII 8: *J. Levie,* L'Encyclique "Humani generis"; *J. Bernhard,* Les Conditions d'application de la "sanatio in radice"; *H. Bernard-Maître,* Les Fondateurs de la Compagnie de Jésus et l'humanisme parisien de la Renaissance (1525–1536); *R. Thibaut,* Noms et chiffres pontificaux.

ARCHIV FÜR PHILOSOPHIE IV 1: *Julius Ebbinghaus,* Die Idee der Toleranz; *Fritz H. Heinemann,* John Toland and the Age of Reason.

THEOLOGISCH-PRAKTISCHE QUARTALSCHRIFT XCVIII 4: *Joh. Kosnetter,* Goethe und die Bibel; *Otto Etl,* Aus der Geschichte des Ave Maria; *Franz König,* Die Zwangssterilisation als moraltheologisches Problem.

ALGEMEEN NEDERLANDS TIJDSCHRIFT WIJSBEGEERTE EN PSYCHOLOGIE XLIII 1: *K. F. Proost,* Nietzsche en het Christendom; *H. J. Pos,* De Natuurlijke taal en haar rationalisering; *H. C. J. Duijker,* Gelijkheid en ongelijkheid.

TIJDSCHRIFT VOOR PHILOSOPHIE XII 3: *Cl. Schoonbrood,* Propositie en oordeel; *C. J. De Vogel,* Plato en het moderne denken; *A. De Waelhens,* Over de betekenis van het oeuvre van Maurice Merleau-Ponty; *E. Minkowski,* Sur le chemin d'une psychologie formelle; *Cl. Vansteenkiste,* De Averroës-latinus editie; *A. H. Henderickx,* Wijsbegeerte van de Griekse en Romeinse oudheid; *Cl. Vansteenkiste,* Biologie en anthropologie.

LES ETUDES PHILOSOPHIQUES NS 2: *J. Benda,* Descartes devant la Pensée contemporaine; *G. Berger,* Pour un retour à Descartes; *C. Devivaise,* Descartes et la mort; *P. Humbert,* Descartes et le style scientifique français; *P. Mesnard,* Le Rationalisme de Descartes; *J. Moreau,* La Réalité de l'étendue chez Descartes; *R. Sarano,* De la liberté chez Descartes; *J. Segond,* La Liberté divine et la liberté humaine, prélude cartésien à l'existentialisme; *C. Husson,* Y-a-t-il de l'intellectualisme chez Bergson?

ANNALES UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA III 1: *Andrzej Zaki,* Les Origines du développement de la culture de Łuzyce dans le bassin de l'amont de la Vistule; *Stefan Nosek,* Les Antiquités de la culture des Venèdes de la region de Lublin.

KWARTALNIK FILOZOFICZNY XIX 1/2 (1950): *Izydora Dambska,* "Meditationes" Descartesa na tle sceptycyzmu francuskeigo XVII wieku; *Seweryna Luszczewka-Romahnowa,* Kartezjański ideal wiedzy; *Stanisław Czajkowski,* "Cognito, ergo sum" Kartezjusza i jego nowa koncepcja duszy; *Władysław Slebodziński,* Rola Descartesa w rozwoju nowożytnej matematiyki; *Roman Stanisław Ingarden,* Descartes a fizyka nowożytna; *Adam Bar,* Kartezjusz w Polsce (Bibliografia).

METHODOS I 1 2 3. 4: *Louis O. Kattsoff,* On Confirmation and Verification of Events, Names, and Statements; *Arthur Pap,* The Philosophical Analysis of Natural Language; *Hao Wang,* A Theory of Constructive Types; *Gottfried Martin,* Über ein zweiwertiges Modell einer vierwertigen Logik; *Albert Menne,* Zur Wahrheitswertstruktur des Urteils.

GREGORIANUM XXXI 2: *F. Asensio,* Tradiciòn sobre un pecado sexual en el Paraiso?; *F. Courtney,* An Unpublished Treatise of Cardinal Robert Pullen (1146); *J. Alfaro,* La gratuidad de la vision intuitiva de le esencia divina y la posibilidad del estado de naturaleza pura segùn los teologos tomistas anteriores a Cayetano II. 3: *I. Filograssi,* Theologia catholica et Assumptio; *F. Asensio,* Tradiciòn sobre un pecado sexual en el Paraiso? III; *A. Landgraf,* Die Mittlerschaft Christi nach der Lehre der Fruehscholastik; *Z. Alszeghy,* La teologia dell'ordine soprannaturale nella Scolastica antica.

SOPHIA XVIII 3–4: *Gaetano Capone Braga,* Galileo e il metodo degli indivisibili; *Mario Colombu,* La dottrina delle cause occasionali in N. Malebranche e in G. B. Vico; *Bruno Brunello,* Intorno all'esistenzialismo; *A. M. Dell'Oro,* Formule esplicative e formule operative nella scienza attuale; *Redeo Mondini,* Interpretazione del carattere degli Italiani; *Ermenegildo Bertola,* Le "Sententiae Florianenses" della Scuola di Abelardo.

GIORNALE DI METAFISICA V 5: *Maria Teresa Antonelli,* Valori e Storia; *Romeo Crippa,* Di Bernardino Varisco filosofo e cristiano; *Giorgio Giannini,* Le idee generatrici dell'esistenzialismo di N. Abbagnano e il loro significato; *Gaetano Capone Braga,* Le "intuizioni pure" di Kant.

RIVISTA DI FILOSOFIA XLI 3: *K. Jaspers,* Filosofia e scienza; *A. Droetto,* Logica e metafisica nel metodo di Spinoza; *U. Scarpelli,* L'unità della scienza nella "International Encyclopedia of Unified Science"; *L. Geymonat* e *S. Ceccato,* Sul significato della Metodologia; *O. Botto,* Dal "Trattato di scienza

politica," di Cânakya. 4: *R. Assunto,* Soggettività e pluralità; *R. Mondolfo,* Il metodo di Galileo e la teoria della conoscenza; *L. Firpo,* Filosofia italiana e Controriforma; *F. Ferrarotti,* La sociologia di Thorstein Veblen; *G. Solari,* Natura e società nel Rousseau; *A. Corsano,* Noterella groziana; *G. Del Vecchio,* Postilla; *L. Geymonat,* Impossibilità di una polemica; *Baruch Spinoza,* Dalla natura dell-Infinito, a cura di *A. Droetto.*

SALESIANUM XII 2: *D. Pietro Brocardo,* Verso un nuovo tipo di santità eroica; *Angiolo Gambaro,* Movimento pedagogico piemontese nella prima metà del secolo XIX; *D. Fedele Giraudi,* L'Oratorio di Don Bosco ai tempi del Savio; *E. Eugenio Ceria,* L'ambiente educativo dell'Oratorio nel tempo del Savio; *P. Felicissimo M. Tinivella,* Domenico Savio al suo entrare all'Oratorio; *Mario Casotti,* Un alunno e un maestro; *P. Ceslao Pera,* La santità raggiunta dal Savio. 3: *D. Giuseppe Braido,* La ragione verso la fede nella teologia di Emilio Brunner; *D. Ivo Paltrinieri, Giovanni Sangalli,* Un'opera finora sconosciuta: "Il liber Miraculorum B.M.V." di Fra Bartolomeo Tridentino; *Carlo Cappello,* G. B. Vico e le relazioni con gli ecclesiastici del suo tempo; *Lawrence M. Titone,* About the Misunderstanding that Gave Rise to the Theory of Hylosystemism; *E. Ceria,* Una publicazione postuma di S. G. Bosco.

VESTNIK 5, 6, 7 (1950).

OUTSTANDING BOOKS
for "Review" Readers

THE HUMAN COMMUNITY
Its Philosophy and Practice for a Time of Crisis

by *Baker Brownell*, Professor of Philosophy, Northwestern University

JOHN DEWEY says: "*The Human Community* (is) *the* book of the present age...It's the sort of thing as to problem and constructive and critical suggestions that more philosophers should be concerned with at present and from which instead they are shying away...I wish I knew what I could do to aid in obtaining for (its) unity of science and poetry the attention it needs as well as deserves." T. V. SMITH, Syracuse University, says: "It is a masterpiece and, I suspect, a masterpiece for our time." A brilliant analysis of our social dilemma and our need to reconstruct community life. $4.00

CREATIVE VISION
In Artist and Audience

by *Richard Guggenheimer*, Director, Art Department, Briarcliff Junior College. Author of "Sight and Insight".

"Written with fervor and eloquence, it presents a point of view to which insufficient attention has been paid in recent times. It combines psychological findings with aesthetic insight and outlines both a program for artists and for spectators of works of art." – GEORGE BOAS, President, The American Society for Aesthetics. "He has understood how to blend his personal experience as a creative artist with the wisdom of the philosophical tradition and the best insights of modern psychology...a work of art in its own right." – Professor ROBERT ULICH, Harvard University. $2.50

SCIENCE AND THE GOALS OF MAN
A Study in Semantic Orientation

by *Anatol Rapoport*, Assistant Professor of Mathematical Biology, University of Chicago. Foreword by *S. I. Hayakawa*.

"A model of clarity...Science emerges, not as a by-product of a particular culture, but as the essence of a culture only now in the process of formation." – *American Scientist*. A philosophy of science, this book applies the tools of semantics to bring about a better understanding of the role of science in human affairs. $3.50

At your bookstore or from

HARPER & BROTHERS

49 East 33rd St. **New York 16, N.Y.**

A two-volume history of philosophy slanted toward contemporary life

by

Frederick Mayer, Associate Professor of Philosophy, University of Redlands

A HISTORY OF ANCIENT AND MEDIEVAL PHILOSOPHY

A HISTORY OF MODERN PHILOSOPHY

Professors have found this unusual history of philosophy a veritable "shot in the arm" for their classes. Avoiding the dry, pedantic style so characteristic of the average history of philosophy text, Dr. Mayer has produced two books in tune with the times. He takes every opportunity to relate philosophical ideas to the student's own life. Thus the student ceases to regard philosophy as a vague, abstruse subject; he comes to regard it as a practical part of his own life...a part of great importance to himself as a person.

Two widely used texts designed for the modern student

by

Harold H. Titus, Professor of Philosophy, Denison University

LIVING ISSUES IN PHILOSOPHY
● **An Introductory Textbook**

ETHICS FOR TODAY
● **Second Edition**

The author of these texts believes that the problems which seem pressing to students are vital issues today. His purpose in each book is to help students with these problems... to train them to see basic issues and to discern the values of life. The language employed is nontechnical and the author's facile style is conducive to the highest student interest.

American Book Company

55 Fifth Avenue, New York 3, N.Y. 300 Pike Street, Cincinnati 2, Ohio
351 East Ohio Street, Chicago 11, Illinois

Two Recent Textbooks

PHILOSOPHY OF RELIGION

By **JOHN A. NICHOLSON,** ***Associate Professor of Philosophy, University of Illinois.*** **This textbook is designed to introduce students to the philosophy of religion. The author interprets religion as seen by Spinoza, Kant, Comte, and Bergson — men who have profoundly influenced our religious thinking today. Understanding is enhanced by selections from the works of these men.** ***419 pages*** **$3.75**

AN INTRODUCTION TO PHILOSOPHY THROUGH LITERATURE

By **ROBERT C. BALDWIN,** ***Professor and Head of the Department of Philosophy; and*** **JAMES A. S. McPEEK,** ***Professor of English, The University of Connecticut.*** **Based on the conviction that the most fruitful approach to philosophy for beginning students can be made through good literature. A fresh approach. Selections from Sophocles, Shakespeare, Auden and others.** ***595 pages*** **$4.50**

Other Volumes

A History of Philosophical Ideas in America

By **W. H. WERKMEISTER,** ***Professor of Philosophy, University of Nebraska.*** **A textbook for the student, graduate and undergraduate, who wishes to familiarize himself with the development of philosophical ideas in this country.** ***599 pages*** **$5.00**

Moral Standards — *AN INTRODUCTION TO ETHICS*

By **CHARLES H. PATTERSON,** ***Professor of Philosophy, University of Nebraska.*** **An introductory textbook to aid students on the college level in clarifying their ideas about principles for judging right from wrong within a democratic society.** ***514 pages*** **$4.25**

Logic and Scientific Methods

AN INTRODUCTORY COURSE

By **HERBERT L. SEARLES,** ***Professor of Philosophy, University of Southern California.*** **Attempts to make clear the essential elements of critical logical thinking and scientific thought methods. $3.50**

Psychology and Ethics

A STUDY OF THE SENSE OF OBLIGATION

By **HARRY L. HOLLINGWORTH,** ***Professor Emeritus of Psychology, Columbia University.*** **Encourages a design for living; shows how improved moral insight contributes to a fuller life. $3.50**

THE RONALD PRESS COMPANY

15 East 26th Street, New York 10, N. Y.

New Spring Publications

An Introduction to Philosophy

REVISED EDITION

Edgar S. Brightman — ***Boston University***

The revision of this introductory text by the famous exponent of the Personalist school of philosophy constitutes a thorough rewriting. Although the main structure and purpose of the first edition is retained, Professor Brightman emphasizes the empirical approach and gives a fuller treatment of the theory of value. Every chapter is revised in accordance with the recent developments in philosophy, and the whole book is brought up to date. The aims of the text are to inform the student about some of the chief problems which concern philosophers, to teach him to think for himself, to make explicit the author's own view of Personalism as a basis for discussion, and to emphasize the necessity of a coherent view of experience as the basis for rational belief and freedom of thought as essential to the discovery of truth.

May — *approximately 450 pages* — *about $4.00*

A History of Philosophy

REVISED EDITION

Frank Thilly. ***Revised by*** **Ledger Wood,** ***Princeton University***

This thorough revision by Professor Wood preserves the valuable features of the original book while containing extensive changes. New material which has been added includes: a chapter on the religious origins of Greek philosophy; a treatment of Zeno's paradoxes; fuller discussion of Plato and Aristotle; new material on Stoicism and Epicureanism; a new chapter on the nature and problems of Scholasticism; discussions of Herder, Nietzsche, Kierkegaard, and Brentano; and, in the treatment of philosophy of the 20th century, a survey of phenomenology, existentialism, realism, pragmatism, and positivism. Bibliographies are brought down to date and the most important German and French books are included, with available English translations indicated wherever possible.

May — *approximately 650 pages* — *about $5.00*

Important Recent Texts

Religion in Human Experience: ***An Introduction***
JOHN R. EVERETT — *President, Hollins College*
1950 — *556 pages* — *$3.90*

Ethics and Society: ***An Appraisal of Social Ideals***
MELVIN RADER — *University of Washington* — $3.40

Methods of Logic
WILLARD VAN ORMAN QUINE — *Harvard University*
1950 — *264 pages* — *$3.00*

Henry Holt and Company — 257 Fourth Avenue, New York 10

THE PHILOSOPHICAL QUARTERLY

(Published by The University of St. Andrews for the Scots Philosophical Club)

The policy of this journal is to publish work of a high academic standard in all branches of philosophy. Special attention is given to the critical surveying of recent philosophical literature, and to book reviewing over a wide field.

Contributors to the 1951 issues will include: Lord Lindsay of Birker, Mr. William C. Kneale, F.B.A., Professor G. Ryle and Mr. M. B. Foster (Oxford), Professor J. Macmurray (Edinburgh), Professor H. A. Hodges (Reading), Professors C. A. Campbell and A. L. Macfie (Glasgow), Professor H. Kuhn (Erlangen), Professor Ugo Spirito (Rome), Mr. E. E. Harris (Johannesburg). The philosophical surveys to be published in 1951 will cover important work published since 1945 on Political Philosophy, Ethics, and Seventeenth and Eighteenth Century Empiricism.

The annual subscription is £1 or $3.00. Single issues are sold at 6s. or $1.00. Drafts should be made payable to *The Philosophical Quarterly*, a/c, Royal Bank of Scotland, St. Andrews, Fife. MSS and all other communications, including those from prospective subscribers, should be addressed to the Editor, T.M. Knox, Professor of Moral Philosophy in The University of St. Andrews, Scotland.

THE CENTURY PHILOSOPHY SERIES

CLASSIC AMERICAN PHILOSOPHERS

MAX H. FISCH, *General Editor*

Covering the classic period of American Philosophy (roughly 1867 to 1939), this new volume contains very sizable selections from the works of six outstanding philosophers of the period. Recognized scholars have written introductions for each philosopher and his work, and Professor Fisch has provided a general introduction to the whole period and its philosophers. The philosophers whose works are included are: Charles Sanders Peirce, (introduction by Arthur W. Burks); William James (introduction by Paul Henle); Josiah Royce (introduction by Otto F. Kraushaar); George Santayana (introduction by Philip B. Rice): John Dewey (introduction by Gail Kennedy); Alfred North Whitehead (introduction by Victor Lowe). *Large Royal 8vo, 493 pages. Price, $4.75*

Appleton - Century - Crofts, Inc.
35 West 32nd St. New York 1, N. Y.

Just published:

RUNAWAY STAR

An Appreciation of Henry Adams

ROBERT A. HUME, *Associate Professor of English, University of Nevada*

Henry Adams' achievements as a writer and a thinker have marked him as one of our most meaningful figures; one whose contribution is today being studied with new appreciation by those concerned with our literary heritage.

In this book by Robert Hume the life, thought, and writings of Henry Adams are critically reappraised, and that symbolic, universal quality of thought and feeling that distinguishes first rank writers illumines this study. In particular, Henry Adams's dynamic theory of history, a concept of special significance to us today, is given thorough attention.

An appendix contains Henry Adams's "Prayer to the Virgin of Chartres," an impressive poem which has become difficult to obtain in recent years. The book also contains a valuable bibliography of writings by and about Henry Adams.

280 PAGES, $3.75

Cornell University Press, Ithaca, New York

Prentice-Hall
COLLEGE TEXTS

Practical Logic

By *Monroe Beardsley, Swarthmore College*

This new book was written to fill a need for an elementary treatment of the essentials of logic and rhetoric that would help people handle the practical problems of thinking that all citizens face in a democracy. In addition to material on syllogisms, Mill's method, etc., the book contains a fuller and more careful treatment of language than is found in other logic books and several sections on how to express oneself clearly in writing.

Published 1950 — 580 pages — 5½" x 8"

Ethical Theories: A Book of Readings

By *A. I. Melden, University of Washington*

Here are, as nearly as possible, complete selections from the moral philosophers — from Plato to the present. The best translations have been used: for Plato, Cornford; for Aristotle, Ross; for Kant, Beck; and so on. Much of this material is not readily available elsewhere: Butler's Sermons, Prichard's essay, Perry's chapter. The editor has provided an introductory essay and notes for each philosopher but, in general, the philosophers speak for themselves.

Published 1950 — 586 pages — 6" x 9"

Ideas and Men

The Story of Western Thought

By *Crane Brinton, Harvard University*

A modern treatment of Western Man's mind and thought from Greek and Hebrew origins to the present has been written by Professor Brinton. This new book is about Ideas, Attitudes and Trends — names and details are subordinated to a profound and readable study of the cosmological and ethical questions that men have examined in all Western literature, art, philosophy, theology, and to a degree, natural science.

Published 1950 — 587 pages — 5⅜" x 8⅛"

Send for your copies today!

PRENTICE-HALL, INC. 70 FIFTH AVENUE NEW YORK 11, N.Y.